

APPENDIX I

PROCESS EQUIPMENT FUGITIVE RELEASE DATA AND CALCULATIONS

SARA TITLE III, SECTION 313
1990 TOXIC CHEMICAL RELEASE INVENTORY
LAKE CHARLES REFINERY

Process Equipment Fugitive Release

Process equipment fugitives were estimated as follows:

1. Obtained attached fugitive equipment VOC emission data from 1989 FORSITE Corporation fugitive emissions survey and 1990 changes to 1989 data.
2. Divided the total VOC by the number of "major" streams for each unit. Heavy streams contributing little to total VOC and have no 313 reportable chemicals were factored out. (See attached "major" streams.)
3. Multiplied the VOC per stream by the liquid weight fraction of the specific chemical. (See Process Stream chapter)
4. All relief valves servicing streams with toxic chemicals were considered to be tied into flare system.

Process drain emissions were estimated as follows:

1. Obtained attached process drain VOC emission data from FORSITE Corporation.
2. Assumed 1989 composition. (See 1988 and 1989 documentation)
3. Used Raoult's Law and the liquid weight fractions to estimate release of specific chemicals.

Cooling tower emissions were estimated as follows:

1. Used cooling tower circulation rate and AP-42 emission factor to calculate total VOC emissions. (See 1988 Documentation and Emission Factors chapter)
2. Assumed 1989 composition to calculate release of each chemical.

The emissions calculations were placed on computer spreadsheets. These spreadsheets are attached.

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GRAND TOTAL FUGITIVES BY UNIT:

	COMPOSITION LOSS (T/YR.)							
	BNZ	TOL	ETB	XYL	CYHX	CUM	PCUM	NAPH
#3 CTU & VAC	0.456	0.740	0.098	0.394	0.710	0	0	0.592
#2 CTU	0.360	0.573	0.076	0.305	0.550	0	0	0.458
#4 HDS	0.183	0.312	0.041	0.166	0.299	0	0	0.249
#3 CRU & HDS	0.641	1.975	0.631	2.076	0.200	0.682	0.170	0
#1 COKER	0.018	0.720	0	1.171	0.180	0.180	0.540	0
#2 COKER	0.009	0.363	0	0.590	0.090	0.090	0.272	0
GRP	0.055	0.403	0	0.655	0.100	0.100	0.302	0
#6 HDS	0.043	0.040	0	0	0.070	0	0	0.040
FCC FEED PREP	0.014	0.043	0.012	0.057	0	0.018	0.008	0.026
FCC UNIT	0.156	0.528	0	0.978	0.195	0.998	0.606	0
#2 CRU & HDS	0.687	1.625	0.451	1.482	0.515	0.486	0.121	0
THERMAL CRACKING	0.058	0.232	0	0.377	0.058	0.058	0.174	0
CASINGHEAD (pbc)	0.143	0.505	0	0.279	0.279	0	0	0.075
MOLEX	0.032	0.030	0	0	0.053	0	0	0.030
L-SHAD & L-VHAD	1.855	0.795	0.212	0	0	0	0	0.318
TANK FARM	2.196	7.696	1.904	8.948	0.521	3.365	1.565	1.565
#7 HDS	0	0	0	0	0	0	0	0.068
#5 HDS	0	0	0	0	0	0	0	0.117

LAKE CHARLES FUGITIVE EMISSION LOSSES

PROCESS	COMPOSITION	VOC LOSS	COMPOSITION LOSS (T/YR.)								
		(T/YR.)	BNZ	TOL	ETB	XYL	CYHX	CUM	PCUM	NAPH	STY
	REG. GASO.		1.8	9.1	2.2	10.6	BD	4.3	2	BD	BD
TANK FARM		26.09	0.47	2.37	0.57	2.77	0.00	1.12	0.52	0.00	0.00
	TOTAL	26.09	0.47	2.37	0.57	2.77	0.00	1.12	0.52	0.00	0.00
GRAND TOTAL (LBS/YR)		52180	939.2	4748.	1147.	5531.	0	2243.	1043.	0	0

PROCESS	COMPOSITION	VOC LOSS	COMPOSITION LOSS (T/YR.)								
		(T/YR.)	BNZ	TOL	ETB	XYL	CYHX	CUM	PCUM	NAPH	STY
	U.L GASO.		2.5	6.1	1.6	7.7	BD	4.3	2	BD	BD
TANK FARM		26.09	0.65	1.59	0.42	2.01	0.00	1.12	0.52	0.00	0.00
	TOTAL	26.09	0.65	1.59	0.42	2.01	0.00	1.12	0.52	0.00	0.00
GRAND TOTAL (LBS/YR)		52180	1304.	3182.	834.8	4017.	0	2243.	1043.	0	0

PROCESS	COMPOSITION	VOC LOSS	COMPOSITION LOSS (T/YR.)								
		(T/YR.)	BNZ	TOL	ETB	XYL	CYHX	CUM	PCUM	NAPH	STY
	SUL GASO.		2.8	9.8	2.5	12	BD	4.3	2	BD	BD
TANK FARM		26.09	0.73	2.56	0.65	3.13	0.00	1.12	0.52	0.00	0.00
	TOTAL	26.09	0.73	2.56	0.65	3.13	0.00	1.12	0.52	0.00	0.00
GRAND TOTAL (LBS/YR)		52180	1461.	5113.	1304.	6261.	0	2243.	1043.	0	0

PROCESS	COMPOSITION	VOC LOSS	COMPOSITION LOSS (T/YR.)							
		(T/YR.)	BNZ	TOL	ETB	XYL	CYHX	CUM	PCUM	NAPH
	SOUR CRUDE		0.23	BD	BD	BD	BD	BD	BD	BD
#3 CTU & VAC		9.87	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	TOTAL	9.87	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GRAND TOTAL (LBS/YR)		19740	45.40	0	0	0	0	0	0	0

PROCESS	COMPOSITION	VOC LOSS	COMPOSITION LOSS (T/YR.)							
		(T/YR.)	BNZ	TOL	ETB	XYL	CYHX	CUM	PCUM	NAPH
	SWEET CRUDE		0.32	BD	BD	BD	BD	BD	BD	BD
#2 CTU		7.64	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TANK FARM		26.09	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	TOTAL	26.09	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GRAND TOTAL (LBS/YR)		52180	166.9	0	0	0	0	0	0	0

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PROCESS	COMPOSITION	VOC LOSS	COMPOSITION LOSS (T/YR.)							
		(T/YR.)	BNZ	TOL	ETB	XYL	CYHX	CUM	PCUM	NAPH
	FCC GASO.		0.8	2.7	BD	5	1	5.1	3.1	BD
FCC		19.57	0.16	0.53	0.00	0.98	0.20	1.00	0.61	0.00
	TOTAL	19.57	0.16	0.53	0.00	0.98	0.20	1.00	0.61	0.00
GRAND TOTAL (LBS/YR)		39140	313.1	1056.	0	1957	391.4	1996.	1213.	0

PROCESS	COMPOSITION	VOC LOSS	COMPOSITION LOSS (T/YR.)							
		(T/YR.)	BNZ	TOL	ETB	XYL	CYHX	CUM	PCUM	NAPH
	LSR GASO.		3.2	3	BD	BD	5.2	BD	BD	BD
NO. 3 CTU & VAC		9.87	0.32	0.30	0.00	0.00	0.51	0.00	0.00	0.00
NO. 2 CTU		7.64	0.24	0.23	0.00	0.00	0.40	0.00	0.00	0.00
NO. 4 HDS		4.16	0.13	0.12	0.00	0.00	0.22	0.00	0.00	0.00
MOLEX		1.02	0.03	0.03	0.00	0.00	0.05	0.00	0.00	0.00
NO. 6 HDS		1.36	0.04	0.04	0.00	0.00	0.07	0.00	0.00	0.00
NO. 2 CRU & HDS		7.16	0.23	0.21	0.00	0.00	0.37	0.00	0.00	0.00
	TOTAL	31.21	1.00	0.94	0.00	0.00	1.62	0.00	0.00	0.00
GRAND TOTAL (LBS/YR)		62420	1997.	1872.	0	0	3245.	0	0	0

PROCESS	COMPOSITION	VOC LOSS	COMPOSITION LOSS (T/YR.)							
		(T/YR.)	BNZ	TOL	ETB	XYL	CYNX	CUM	PCUM	NAPH
	REFORMATE		5.4	15.2	5.3	16.7	BD	6.8	1.7	BD
NO. 3 CRU & HDS		10.03	0.54	1.52	0.53	1.68	0.00	0.68	0.17	0.00
NO. 2 CRU & HDS		7.16	0.39	1.09	0.38	1.20	0.00	0.49	0.12	0.00
	TOTAL	17.19	0.93	2.61	0.91	2.87	0.00	1.17	0.29	0.00
GRAND TOTAL (LBS/YR)		34380	1856.	5225.	1822.	5741.	0	2337.	584.4	0

PROCESS	COMPOSITION	VOC LOSS	COMPOSITION LOSS (T/YR.)							
		(T/YR.)	BNZ	TOL	ETB	XYL	CYHX	CUM	PCUM	NAPH
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	NAPHTHA		1	4.5	1	4	2	BD	BD	BD
NO. 3 CTU & VAC		9.87	0.10	0.44	0.10	0.39	0.20	0.00	0.00	0.00
NO. 2 CTU		7.64	0.08	0.34	0.08	0.31	0.15	0.00	0.00	0.00
NO. 4 HDS		4.16	0.04	0.19	0.04	0.17	0.08	0.00	0.00	0.00
NO. 3 CRU & HDS		10.03	0.10	0.45	0.10	0.40	0.20	0.00	0.00	0.00
NO. 2 CRU & HDS		7.16	0.07	0.32	0.07	0.29	0.14	0.00	0.00	0.00
TANK FARM		26.09	0.26	1.17	0.26	1.04	0.52	0.00	0.00	0.00
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	TOTAL	64.95	0.65	2.92	0.65	2.60	1.30	0.00	0.00	0.00
GRAND TOTAL (LBS/YR)		129900	1299	5845.	1299	5196	2598	0	0	0

PROCESS	COMPOSITION	VOC LOSS	COMPOSITION LOSS (T/YR.)						
		(T/YR.)	BNZ	TOL	ETB	XYL	CYHX	CUM	PCUM

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KEROSENE		BD	BD	BD	BD	BD	BD	BD	3
NO. 3 CTU & VAC	9.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30
NO. 2 CTU	7.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23
NO. 4 HDS	4.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
TANK FARM	26.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78
MOLEX	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
TOTAL		48.78	0.00	0.00	0.00	0.00	0.00	0.00	1.46
GRAND TOTAL (LBS/YR)		97560	0	0	0	0	0	0	2926.

PROCESS	COMPOSITION	VOC LOSS	COMPOSITION LOSS (T/YR.)							
		(T/YR.)	BNZ	TOL	ETB	XYL	CYHX	CUM	PCUM	NAPH
	DIESEL		BD	BD	BD	BD	BD	BD	BD	3
NO. 3 CTU & VAC		9.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30
NO.2 CTU		7.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23
NO. 4 HDS		4.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
NO. 5 HDS		3.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
NO. 6 HDS		1.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
FCC FEED PREP		0.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
TANK FARM		26.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78
NO. 7 HDS		2.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
	TOTAL	56.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69
GRAND TOTAL (LBS/YR)		112420	0	0	0	0	0	0	0	3372.

PROCESS	COMPOSITION	VOC LOSS	COMPOSITION LOSS (T/YR.)							
		(T/YR.)	BNZ	TOL	ETB	XYL	CYHX	CUM	PCUM	NAPH
	CRUDE WET GAS		0.2	BD	BD	BD	BD	BD	BD	BD
NO. 3 CTU & VAC		9.87	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NO. 2 CTU		7.64	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NO. 4 HDS		4.16	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	TOTAL	21.67	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GRAND TOTAL (LBS/YR)		43340	86.68	0	0	0	0	0	0	0

PROCESS	COMPOSITION	VOC LOSS	COMPOSITION LOSS (T/YR.)							
		(T/YR.)	BNZ	TOL	ETB	XYL	CYHX	CUM	PCUM	NAPH
	COKER GASOLINE		0.1	4	BD	6.5	1	1	3	BD
NO. 1 COKER		18.02	0.02	0.72	0.00	1.17	0.18	0.18	0.54	0.00
NO. 2 COKER		9.08	0.01	0.36	0.00	0.59	0.09	0.09	0.27	0.00
GAS RECOVERY PLANT		5.04	0.01	0.20	0.00	0.33	0.05	0.05	0.15	0.00
	TOTAL	32.14	0.03	1.29	0.00	2.09	0.32	0.32	0.96	0.00
GRAND TOTAL (LBS/YR)		64280	64.28	2571.	0	4178.	642.8	642.8	1928.	0

PROCESS	COMPOSITION	VOC LOSS (T/YR.)	BNZ	TOL	ETB	XYL	CYHX	CUM	PCUM	NAPH
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THERMAL GASOLINE		1	4	BD	6.5	1	1	3	BD
GAS RECOVERY PLANT	5.04	0.05	0.20	0.00	0.33	0.05	0.05	0.15	0.00
THERMAL CRACKER	5.8	0.06	0.23	0.00	0.38	0.06	0.06	0.17	0.00
TOTAL	10.84	0.11	0.43	0.00	0.70	0.11	0.11	0.33	0.00
GRAND TOTAL (LBS/YR)	21680	216.8	867.2	0	1409.	216.8	216.8	650.4	0

PROCESS	COMPOSITION	VOC LOSS	COMPOSITION LOSS (T/YR.)								
		(T/YR.)	BNZ	TOL	ETB	XYL	CYHX	CUM	PCUM	NAPH	STY
	SABINE HAD		35	15	4	BD	BD	BD	BD	6	10
L-SHAD + L-VHAD		5.3	1.86	0.79	0.21	0.00	0.00	0.00	0.00	0.32	0.53
	TOTAL	5.30	1.86	0.79	0.21	0.00	0.00	0.00	0.00	0.32	0.53
GRAND TOTAL (LBS/YR)		10600	3710	1590	424	0	0	0	0	636	1060

PROCESS	COMPOSITION	VOC LOSS	COMPOSITION LOSS (T/YR.)							
		(T/YR.)	BNZ	TOL	ETB	XYL	CYHX	CUM	PCUM	NAPH
	CASINGHEAD		1.9	6.7	BD	3.7	3.7	BD	BD	1
CASINGHEAD UNIT		7.55	0.14	0.51	0.00	0.28	0.28	0.00	0.00	0.08
	TOTAL	7.55	0.14	0.51	0.00	0.28	0.28	0.00	0.00	0.08
GRAND TOTAL (LBS/YR)		15100	286.9	1011.	0	558.7	558.7	0	0	151

PROCESS	COMPOSITION	VOC LOSS	COMPOSITION LOSS (T/YR.)	
		(T/YR.)	METH	MTBE
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	MTBE UNIT		10	90
MTBE		0.44	0.04	0.40
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	TOTAL	0.44	0.04	0.40
GRAND TOTAL (LBS/YR)		880	88	792

PROCESS	COMPOSITION	VOC LOSS	COMPOSITION LOSS (T/YR.)							
		(T/YR.)	BNZ	TOL	ETB	XYL	CYHX	CUM	PCUM	NAPH
	SLOP OIL		1.6	4.9	1.4	6.5	BD	2.15	1	BD
FCC FEED PREP		0.88	0.01	0.04	0.01	0.06	0.00	0.02	0.01	0.00
	TOTAL	0.88	0.01	0.04	0.01	0.06	0.00	0.02	0.01	0.00
GRAND TOTAL (LBS/YR)		1760	28.16	86.24	24.64	114.4	0	37.84	17.6	0

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PROCESS	COMPOSITION	VOC LOSS	COMPOSITION LOSS (T/YR.)		
		(T/YR.)	ETHY.	PROPY	1,3 BUT.
	COKE WET GAS		1	7	0.1
NO. 1 COKE		18.02	0.18	1.26	0.02
NO. 2 COKE		9.08	0.09	0.64	0.01
GAS RECOVERY PLANT		5.04	0.05	0.35	0.01
THERMAL CRACKER		5.8	0.06	0.41	0.01
	TOTAL	37.94	0.379	2.655	0.037
	GRAND TOTAL (LBS/YR)	75880	758.8	5311.	75.88

PROCESS	COMPOSITION	VOC LOSS	COMPOSITION LOSS (T/YR.)		
		(T/YR.)	ETHY.	PROPY	1,3 BUT.
	SWS GAS		9	25	0.1
ACID PLANT		2.34	0.21	0.59	0.00
	TOTAL	2.34	0.210	0.585	0.002
GRAND TOTAL (LBS/YR)		4680	421.2	1170	4.68

PROCESS	COMPOSITION	VOC LOSS	COMPOSITION LOSS (T/YR.)		
		(T/YR.)	ETHY.	PROPY	1,3 BUT.
	FUEL GAS		3.6	5	0.3
BOILERS		6.7	0.24	0.34	0.02
MTBE		0.44	0.02	0.02	0.00
HEATERS		26.62	0.96	1.33	0.08
TANK FARM		26.09	0.94	1.30	0.08
	TOTAL	59.85	2.154	2.992	0.179
GRAND TOTAL (LBS/YR)		119700	4309.	5985	359.1

PROCESS	COMPOSITION	VOC LOSS	COMPOSITION LOSS (T/YR.)		
		(T/YR.)	ETHY.	PROPY	1,3 BUT.
	B-B		80	5	0.3
ALKYLATION		8.77	0.00	0.44	0.03
CASINGHEAD UNIT		7.55	0.00	0.38	0.02
MTBE		0.44	0.00	0.02	0.00
GAS RECOVERY PLANT		5.04	0.00	0.25	0.02
FCC		19.57	0.00	0.98	0.06
	TOTAL	41.37	0	2.068	0.124
	GRAND TOTAL (LBS/YR)	82740	0	4137	248.2

PROCESS	COMPOSITION	VOC LOSS	COMPOSITION LOSS (T/YR.)		
		(T/YR.)	ETHY.	PROPY	1,3 BUT.
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	P-P		80	68	0.3

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ALKYLATION	8.77	0.00	5.96	0.03
CASINGHEAD UNIT	7.55	0.00	5.13	0.02
CAT POLY	12.09	0.00	8.22	0.04
FCC	19.57	0.00	13.31	0.06
GAS RECOVERY PLANT	5.04	0.00	3.43	0.02

TOTAL	53.02	0	36.05	0.159
GRAND TOTAL (LBS/YR)	106040	0	72107	318.1

PROCESS	COMPOSITION	VOC LOSS (T/YR.)	COMPOSITION LOSS (T/YR.)		
-----	-----	-----	ETHY.	PROPY	1,3 BUT.

	FCC TAIL		16	12	0.2
FCC		19.57	3.13	2.35	0.04

TOTAL		19.57	3.131	2.348	0.039
GRAND TOTAL (LBS/YR)		39140	6262.	4696.	78.28

PROCESS	COMPOSITION	VOC LOSS (T/YR.)	COMPOSITION LOSS (T/YR.)		
-----	-----	-----	ETHY.	PROPY	1,3 BUT.

	P-B		80	33	0.2
CRYO GAS PLANT		8.33	0.00	2.75	0.02
GAS RECOVERY PLANT		5.04	0.00	1.66	0.01

TOTAL		13.37	0	4.412	0.026
GRAND TOTAL (LBS/YR)		26740	0	8824.	53.48

PROCESS	COMPOSITION	VOC LOSS (T/YR.)	COMPOSITION LOSS (T/YR.)		
-----	-----	-----	ETHY.	PROPY	1,3 BUT.

	CRYO FEED		80	8	0.3
CRYO GAS PLANT		8.33	0.00	0.67	0.02

TOTAL		8.33	0	0.666	0.024
GRAND TOTAL (LBS/YR)		16660	0	1332.	49.98

PROCESS	COMPOSITION	VOC LOSS (T/YR.)	COMPOSITION LOSS (T/YR.)		
-----	-----	-----	ETHY.	PROPY	1,3 BUT.

	CRYO TAIL GAS		15	7	80
CRYO GAS PLANT		8.33	1.25	0.58	0.00

TOTAL		8.33	1.249	0.583	0
GRAND TOTAL (LBS/YR)		16660	2499	1166.	0

PROCESS	COMPOSITION	VOC LOSS	COMPOSITION LOSS (T/YR.)								
		(T/YR.)	BNZ	TOL	ETB	XYL	CYHX	CUM	PCUM	NAPH	STY
			0.32	0.77	0.19	1.2	0.56	0.12	0.12	0.15	0.15
COOLING TOWER		19.57	0.06	0.15	0.04	0.23	0.11	0.02	0.02	0.03	0.00
	TOTAL	19.57	0.06	0.15	0.04	0.23	0.11	0.02	0.02	0.03	0.00
GRAND TOTAL (LBS/YR)		39140	125.2	301.3	74.36	469.6	219.1	46.96	46.96	58.71	0.187

PROCESS	COMPOSITION	VOC LOSS	COMPOSITION LOSS (T/YR.)								
		(T/YR.)	BNZ	TOL	ETB	XYL	CYHX	CUM	PCUM	NAPH	STY
			0.32	0.77	0.19	1.2	0.56	0.12	0.12	0.15	0.15
PROCESS DRAINS		546.60	0.79	0.56	0.05	0.25	1.42	0.01	0.01	0.00	0.02
	TOTAL	546.60	0.79	0.56	0.05	0.25	1.42	0.01	0.01	0.00	0.02
GRAND TOTAL (LBS/YR)		1,093,200	1,574	1,114	92	502	2,845	27	14	2	48

LAKE CHARLES PROCESS EQUIPMENT FUGITIVES

1. NO. 3 CTU & VAC		DAYS ON STREAM = 340		# OF SARA STREAMS = 6		
EMISSION SOURCE	NUMBER SOURCES	VOC (LB/HR)	OR	NON- LEAKERS	TOTAL SOURCES	VOC (LB/HR)

VALVES:						
GAS		1.88			0	0.00
L. LIQUID		9.31			0	0.00
H. LIQUID		0.30			0	0.00
FLANGES		1.42			0	0.00
PUMP SEALS:						
L. LIQUID		0.77			0	0.00
H. LIQUID		0.63			0	0.00
COMP. SEALS		0.20			0	0.00

TOTAL		14.51				0.00
VOC (TPY/STREAM) =		9.87		VOC (TPY/STREAM) =		0.00

2. NO. 2 CTU		DAYS ON STREAM =		354	# OF SARA STREAMS =		6
EMISSION SOURCE	NUMBER SOURCES	VOC (LB/HR)	OR	NON- LEAKERS	LEAKERS	TOTAL SOURCES	VOC (LB/HR)

VALVES:							
GAS		1.75				0	0.00
L. LIQUID		6.24				0	0.00
H. LIQUID		0.26				0	0.00
FLANGES		1.12				0	0.00
PUMP SEALS:							
L. LIQUID		0.70				0	0.00
H. LIQUID		0.52				0	0.00
COMP. SEALS		0.20				0	0.00

TOTAL		10.79					0.00
VOC (TPY/STREAM) =		7.64		VOC (TPY/STREAM) =		0.00	

3. NO. 4 HDS		DAYS ON STREAM = 336		# OF SARA STREAMS = 5		
EMISSION	NUMBER	VOC	OR	NON-	TOTAL	VOC
SOURCE	SOURCES	(LB/HR)		LEAKERS	SOURCES	(LB/HR)
-----	-----	-----		-----	-----	-----
VALVES:						
GAS		2.16			0	0.00
L. LIQUID		1.09			0	0.00

SAL 000004294

H. LIQUID	0.09	0	0.00
FLANGES	0.75	0	0.00
PUMP SEALS:			
L. LIQUID	0.25	0	0.00
H. LIQUID	0.23	0	0.00
COMP. SEALS	0.59	0	0.00
	-----		-----
TOTAL	5.16		0.00
VOC (TPY/STREAM) =	4.16	VOC (TPY/STREAM) =	0.00

=====

4. NO 5 HDS DAYS ON STREAM = 338 # OF SARA STREAMS = 2

EMISSION SOURCE	NUMBER SOURCES	VOC (LB/HR)	OR	NON- LEAKERS	LEAKERS	TOTAL SOURCES	VOC (LB/HR)
-----	-----	-----		-----	-----	-----	-----
VALVES:							
GAS		0.80				0	0.00
L. LIQUID		0.51				0	0.00
H. LIQUID		0.07				0	0.00
FLANGES		0.29				0	0.00
PUMP SEALS:							
L. LIQUID		0.00				0	0.00
H. LIQUID		0.14				0	0.00
COMP. SEALS		0.00				0	0.00
1990 MODIFICATIONS	ADD	0.1256 (0.55 T/YR)					
		-----					-----
TOTAL		1.94					0.00
VOC (TPY/STREAM) =		3.93				VOC (TPY/STREAM) =	0.00

=====

5. NO 3 CRU & HDS DAYS ON STREAM = 345 # OF SARA STREAMS = 5

EMISSION SOURCE	NUMBER SOURCES	VOC (LB/HR)	OR	NON- LEAKERS	LEAKERS	TOTAL SOURCES	VOC (LB/HR)
-----	-----	-----		-----	-----	-----	-----
VALVES:							
GAS		2.97				0	0.00
L. LIQUID		5.78				0	0.00
H. LIQUID		0.33				0	0.00
FLANGES		1.45				0	0.00
PUMP SEALS:							
L. LIQUID		0.91				0	0.00
H. LIQUID		0.67				0	0.00
COMP. SEALS		0.00				0	0.00
		-----					-----
TOTAL		12.11					0.00

VOC (TPY/STREAM) = 10.03

VOC (TPY/STREAM) = 0.00

6. NO. 1 COKER

DAYS ON STREAM = 329

OF SARA STREAMS = 2

EMISSION SOURCE	NUMBER SOURCES	VOC (LB/HR)	OR	NON-LEAKERS	LEAKERS	TOTAL SOURCES	VOC (LB/HR)
VALVES:							
GAS		3.87				0	0.00
L. LIQUID		3.21				0	0.00
H. LIQUID		0.05				0	0.00
FLANGES							
		1.37				0	0.00
PUMP SEALS:							
L. LIQUID		0.54				0	0.00
H. LIQUID		0.09				0	0.00
COMP. SEALS							
		0.00				0	0.00
TOTAL		9.13					0.00

VOC (TPY/STREAM) = 18.02

VOC (TPY/STREAM) = 0.00

7. NO. 2 COKER

DAYS ON STREAM = 347

OF SARA STREAMS = 2

EMISSION SOURCE	NUMBER SOURCES	VOC (LB/HR)	OR	NON-LEAKERS	LEAKERS	TOTAL SOURCES	VOC (LB/HR)
VALVES:							
GAS		1.91				0	0.00
L. LIQUID		0.97				0	0.00
H. LIQUID		0.16				0	0.00
FLANGES							
		0.68				0	0.00
PUMP SEALS:							
L. LIQUID		0.28				0	0.00
H. LIQUID		0.32				0	0.00
COMP. SEALS							
		0.00				0	0.00
1990 MODIFICATIONS ADD		0.03881 (0.17 T/YR)					
TOTAL		4.36					0.00

VOC (TPY/STREAM) = 9.08

VOC (TPY/STREAM) = 0.00

8. GAS RECOVERY PLANT

DAYS ON STREAM = 345

OF SARA STREAMS = 8

EMISSION SOURCE	NUMBER SOURCES	VOC (LB/HR)	OR	NON-LEAKERS	LEAKERS	TOTAL SOURCES	VOC (LB/HR)
VALVES:							

SAL 000004296

GAS	1.25	0	0.00
L. LIQUID	5.96	0	0.00
H. LIQUID	0.22	0	0.00
FLANGES	0.95	0	0.00
PUMP SEALS:			
L. LIQUID	0.91	0	0.00
H. LIQUID	0.44	0	0.00
COMP. SEALS	0.00	0	0.00
TOTAL	9.73		0.00
VOC (TPY/STREAM) = 5.04		VOC (TPY/STREAM) = 0.00	

=====

9. NO. 6 HDS DAYS ON STREAM = 333 # OF SARA STREAMS = 3

EMISSION SOURCE	NUMBER SOURCES	VOC (LB/HR)	OR	NON- LEAKERS	LEAKERS	TOTAL SOURCES	VOC (LB/HR)
VALVES:							
GAS		0.58				0	0.00
L. LIQUID		0.00				0	0.00
H. LIQUID		0.04				0	0.00
FLANGES		0.18				0	0.00
PUMP SEALS:							
L. LIQUID		0.14				0	0.00
H. LIQUID		0.08				0	0.00
COMP. SEALS		0.00				0	0.00
TOTAL		1.02					0.00
VOC (TPY/STREAM) = 1.36		VOC (TPY/STREAM) = 0.00					

=====

10. NO. 7 HDS DAYS ON STREAM = 328 # OF SARA STREAMS = 2

EMISSION SOURCE	NUMBER SOURCES	VOC (LB/HR)	OR	NON- LEAKERS	LEAKERS	TOTAL SOURCES	VOC (LB/HR)
VALVES:							
GAS		0.86				0	0.00
L. LIQUID		0.00				0	0.00
H. LIQUID		0.03				0	0.00
FLANGES		0.21				0	0.00
PUMP SEALS:							
L. LIQUID		0.00				0	0.00
H. LIQUID		0.06				0	0.00
COMP. SEALS		0.00				0	0.00

TOTAL	1.16	0.00
VOC (TPY/STREAM) =	2.28	VOC (TPY/STREAM) = 0.00

11. FCC FEED PREP. DAYS ON STREAM = 326 # OF SARA STREAMS = 2

EMISSION SOURCE	NUMBER SOURCES	VOC (LB/HR)	OR	NON- LEAKERS	LEAKERS	TOTAL SOURCES	VOC (LB/HR)
VALVES:							
GAS		0.21				0	0.00
L. LIQUID		0.13				0	0.00
H. LIQUID		0.01				0	0.00
FLANGES		0.08				0	0.00
PUMP SEALS:							
L. LIQUID		0.00				0	0.00
H. LIQUID		0.02				0	0.00
COMP. SEALS		0.00				0	0.00
TOTAL		0.45					0.00
VOC (TPY/STREAM) =		0.88			VOC (TPY/STREAM) =		0.00

12. FCC DAYS ON STREAM = 317 # OF SARA STREAMS = 4

EMISSION SOURCE	NUMBER SOURCES	VOC (LB/HR)	OR	NON- LEAKERS	LEAKERS	TOTAL SOURCES	VOC (LB/HR)
VALVES:							
GAS		2.32				0	0.00
L. LIQUID		13.32				0	0.00
H. LIQUID		0.45				0	0.00
FLANGES		1.96				0	0.00
PUMP SEALS:							
L. LIQUID		1.25				0	0.00
H. LIQUID		0.91				0	0.00
COMP. SEALS		0.20				0	0.00
1990 FCC MODS	ADD	0.1712		(0.75 T/YR)			
TOTAL		20.58					0.00
VOC (TPY/STREAM) =		19.57			VOC (TPY/STREAM) =		0.00

13. CRYO GAS PLANT DAYS ON STREAM = 341 # OF SARA STREAMS = 3

EMISSION SOURCE	NUMBER SOURCES	VOC (LB/HR)	OR	NON- LEAKERS	LEAKERS	TOTAL SOURCES	VOC (LB/HR)
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-----				-----	
VALVES:					
GAS	2.53			0	0.00
L. LIQUID	1.65			0	0.00
H. LIQUID	0.11			0	0.00
FLANGES	0.95			0	0.00
PUMP SEALS:					
L. LIQUID	0.39			0	0.00
H. LIQUID	0.28			0	0.00
COMP. SEALS	0.20			0	0.00
-----				-----	
TOTAL	6.11				0.00
VOC (TPY/STREAM) =		8.33	VOC (TPY/STREAM) =		0.00

14. CAT POLY		DAYS ON STREAM =		342	# OF SARA STREAMS =		4	
				-----			----	
EMISSION SOURCE	NUMBER SOURCES	VOC (LB/HR)	OR	NON- LEAKERS	LEAKERS	TOTAL SOURCES	VOC (LB/HR)	
-----		-----		-----	-----	-----	-----	
VALVES:								
GAS		0.89				0	0.00	
L. LIQUID		8.05				0	0.00	
H. LIQUID		0.23				0	0.00	
FLANGES		1.03				0	0.00	
PUMP SEALS:								
L. LIQUID		1.11				0	0.00	
H. LIQUID		0.47				0	0.00	
COMP. SEALS		0.00				0	0.00	
		-----					-----	
TOTAL		11.78					0.00	
VOC (TPY/STREAM) =		12.09			VOC (TPY/STREAM) =			0.00

15. NO. 2 CRU & HDS		DAYS ON STREAM =		310	# OF SARA STREAMS =		5
EMISSION SOURCE	NUMBER SOURCES	VOC (LB/HR)	OR	NON- LEAKERS	LEAKERS	TOTAL SOURCES	VOC (LB/HR)
VALVES:							
GAS		2.40				0	0.00
L. LIQUID		4.49				0	0.00
H. LIQUID		0.27				0	0.00
FLANGES		1.16				0	0.00
PUMP SEALS:							
L. LIQUID		0.56				0	0.00
H. LIQUID		0.54				0	0.00

COMP. SEALS	0.20	0	0.00
-----		-----	
TOTAL	9.62		0.00
VOC (TPY/STREAM) = 7.16		VOC (TPY/STREAM) = 0.00	

=====

16. NO. 1 HDS	DAYS ON STREAM = 0	# OF SARA STREAMS = 0
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EMISSION SOURCE	NUMBER SOURCES	VOC (LB/HR)	OR	NON-LEAKERS	LEAKERS	TOTAL SOURCES	VOC (LB/HR)

VALVES:							
GAS		0.00				0	0.00
L. LIQUID		0.00				0	0.00
H. LIQUID		0.00				0	0.00
FLANGES		0.00				0	0.00
PUMP SEALS:							
L. LIQUID		0.00				0	0.00
H. LIQUID		0.00				0	0.00
COMP. SEALS		0.00				0	0.00
-----		-----					
TOTAL		0.00					0.00
VOC (TPY/STREAM) = ERR		VOC (TPY/STREAM) = ERR					

=====

17. THERMAL CRACKER	DAYS ON STREAM = 318	# OF SARA STREAMS = 2
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EMISSION SOURCE	NUMBER SOURCES	VOC (LB/HR)	OR	NON-LEAKERS	LEAKERS	TOTAL SOURCES	VOC (LB/HR)

VALVES:							
GAS		0.77				0	0.00
L. LIQUID		1.42				0	0.00
H. LIQUID		0.09				0	0.00
FLANGES		0.37				0	0.00
PUMP SEALS:							
L. LIQUID		0.21				0	0.00
H. LIQUID		0.17				0	0.00
COMP. SEALS		0.00				0	0.00
1990 MODIFICATIONS		0.009 (0.04 T/YR)					
-----		-----					
TOTAL		3.04					0.00
VOC (TPY/STREAM) = 5.80		VOC (TPY/STREAM) = 0.00					

=====

18. CASINGHEAD UNIT	DAYS ON STREAM = 348	# OF SARA STREAMS = 10
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EMISSION	NUMBER	VOC	NON-	TOTAL	VOC

SOURCE	SOURCES	(LB/HR)	OR	LEAKERS	LEAKERS	SOURCES	(LB/HR)
VALVES:							
GAS		1.25				0	0.00
L. LIQUID		12.45				0	0.00
H. LIQUID		0.36				0	0.00
FLANGES		1.55				0	0.00
PUMP SEALS:							
L. LIQUID		1.74				0	0.00
H. LIQUID		0.72				0	0.00
COMP. SEALS		0.00				0	0.00
TOTAL		18.07					0.00
VOC (TPY/STREAM) =		7.55				VOC (TPY/STREAM) = 0.00	

=====

19. ALKYLATION UNIT		DAYS ON STREAM = 329		# OF SARA STREAMS = 6			
EMISSION SOURCE	NUMBER SOURCES	VOC (LB/HR)	OR	NON-LEAKERS	LEAKERS	TOTAL SOURCES	VOC (LB/HR)
VALVES:							
GAS		1.12				0	0.00
L. LIQUID		8.79				0	0.00
H. LIQUID		0.27				0	0.00
FLANGES		1.16				0	0.00
PUMP SEALS:							
L. LIQUID		1.25				0	0.00
H. LIQUID		0.54				0	0.00
COMP. SEALS		0.20				0	0.00
TOTAL		13.33					0.00
VOC (TPY/STREAM) =		8.77				VOC (TPY/STREAM) = 0.00	

=====

20. TANK FARM		DAYS ON STREAM = 365		# OF SARA STREAMS = 9			
EMISSION SOURCE	NUMBER SOURCES	VOC (LB/HR)	OR	NON-LEAKERS	LEAKERS	TOTAL SOURCES	VOC (LB/HR)
VALVES:							
GAS		1.96				0	0.00
L. LIQUID		37.07				0	0.00
H. LIQUID		0.99				0	0.00
FLANGES		4.16				0	0.00
PUMP SEALS:							
L. LIQUID		6.96				0	0.00

H. LIQUID	2.12	0	0.00
COMP. SEALS	0.00	0	0.00
1990 MODIFICATIONS	0.349 (1.53 T/YR)		
	-----		-----
TOTAL	53.61		0.00
VOC (TPY/STREAM) =	26.09	VOC (TPY/STREAM) =	0.00

=====

21. ACID PLANT	DAYS ON STREAM =	330	# OF SARA STREAMS =	2		
		-----		----		
EMISSION SOURCE	NUMBER SOURCES	VOC (LB/HR)	OR NON-LEAKERS	LEAKERS	TOTAL SOURCES	VOC (LB/HR)
	-----	-----	-----	-----	-----	-----
VALVES:						
GAS		0.78			0	0.00
L. LIQUID		0.00			0	0.00
H. LIQUID		0.05			0	0.00
FLANGES		0.24			0	0.00
PUMP SEALS:						
L. LIQUID		0.00			0	0.00
H. LIQUID		0.11			0	0.00
COMP. SEALS		0.00			0	0.00
		-----				-----
TOTAL		1.18				0.00
VOC (TPY/STREAM) =		2.34	VOC (TPY/STREAM) =			0.00

=====

22. MOLEX	DAYS ON STREAM =	274	# OF SARA STREAMS =	3		
		-----		----		
EMISSION SOURCE	NUMBER SOURCES	VOC (LB/HR)	OR NON-LEAKERS	LEAKERS	TOTAL SOURCES	VOC (LB/HR)
	-----	-----	-----	-----	-----	-----
VALVES:						
GAS		0.30			0	0.00
L. LIQUID		0.41			0	0.00
H. LIQUID		0.03			0	0.00
FLANGES		0.13			0	0.00
PUMP SEALS:						
L. LIQUID		0.00			0	0.00
H. LIQUID		0.06			0	0.00
COMP. SEALS		0.00			0	0.00
		-----				-----
TOTAL		0.93				0.00
VOC (TPY/STREAM) =		1.02	VOC (TPY/STREAM) =			0.00

=====

23. L-SHAD	DAYS ON STREAM =	365	# OF SARA STREAMS =	1
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SAL 000004302

EMISSION SOURCE	NUMBER SOURCES	VOC (LB/HR)	OR	NON- LEAKERS	LEAKERS	TOTAL SOURCES	VOC (LB/HR)

VALVES:							
GAS		0.00				0	0.00
L. LIQUID		0.85				0	0.00
H. LIQUID		0.00				0	0.00
FLANGES		0.14				0	0.00
PUMP SEALS:							
L. LIQUID		0.00				0	0.00
H. LIQUID		0.00				0	0.00
COMP. SEALS		0.00				0	0.00
1990 MODIFICATIONS		0.018 (.08 T/YR)					

TOTAL		1.01					0.00

VOC (TPY/STREAM) =		4.42				VOC (TPY/STREAM) =	0.00

=====

24. L-VHAD DAYS ON STREAM = 365 # OF SARA STREAMS = 1

EMISSION SOURCE	NUMBER SOURCES	VOC (LB/HR)	OR	NON- LEAKERS	LEAKERS	TOTAL SOURCES	VOC (LB/HR)

VALVES:							
GAS		0.00				0	0.00
L. LIQUID		0.17				0	0.00
H. LIQUID		0.00				0	0.00
FLANGES		0.03				0	0.00
PUMP SEALS:							
L. LIQUID		0.00				0	0.00
H. LIQUID		0.00				0	0.00
COMP. SEALS		0.00				0	0.00

TOTAL		0.20					0.00

VOC (TPY/STREAM) =		0.88				VOC (TPY/STREAM) =	0.00

=====

25. BOILERS DAYS ON STREAM = 365 # OF SARA STREAMS = 1

EMISSION SOURCE	NUMBER SOURCES	VOC (LB/HR)	OR	NON- LEAKERS	LEAKERS	TOTAL SOURCES	VOC (LB/HR)

VALVES:							
GAS		1.00				0	0.00
L. LIQUID		0.00				0	0.00
H. LIQUID		0.07				0	0.00
FLANGES		0.31				0	0.00

SAL 000004303

PUMP SEALS:			
L. LIQUID	0.00	0	0.00
H. LIQUID	0.15	0	0.00
COMP. SEALS	0.00	0	0.00

TOTAL	1.53		0.00
VOC (TPY/STREAM) =	6.70	VOC (TPY/STREAM) =	0.00

=====

26. HEATERS		DAYS ON STREAM = 365		# OF SARA STREAMS = 1		

EMISSION SOURCE	NUMBER SOURCES	VOC (LB/HR)	OR	NON-LEAKERS	TOTAL SOURCES	VOC (LB/HR)

VALVES:						
GAS		0.00		1318	32	4.62
L. LIQUID		0.00		0	0	0.00
H. LIQUID		0.00		0	0	0.00
FLANGES		0.00		4854	6	1.13
PUMP SEALS:						
L. LIQUID		0.00		0	0	0.00
H. LIQUID		0.00		0	0	0.00
COMP. SEALS		0.00		0	0	0.00
1990 MODIFICATIONS						0.331

TOTAL		0.00				6.08
VOC (TPY/STREAM) =	0.00	VOC (TPY/STREAM) =	26.62			

=====

27. MTBE		DAYS ON STREAM = 140		# OF SARA STREAMS = 5		

EMISSION SOURCE	NUMBER SOURCES	VOC (LB/HR)	OR	NON-LEAKERS	TOTAL SOURCES	VOC (LB/HR)

VALVES:						
GAS		0.00		68		0.07
L. LIQUID		0.00		187		0.71
H. LIQUID		0.00		0		0.00
FLANGES		0.00		918		0.12
PUMP SEALS:						
L. LIQUID		0.00		0		0.00
H. LIQUID		0.00		0		0.00
COMP. SEALS		0.00		2		0.40

TOTAL		0.00				1.30
VOC (TPY/STREAM) =	0.00	VOC (TPY/STREAM) =	0.44			

PROCESS DRAIN EMISSIONS

AP-42 FACTOR = .07 LB/HR PER DRAIN

DRAIN COUNT	FRACTION COVERED	VOC (LB/HR)
852	0.0529	58.06
VOC (TONS/YEAR) =		254.31

ESTIMATED JUNCTION BOX EMISSION = .47 LB/HR PER BOX •

J.B. COUNT	FRACTION COVERED	VOC (LB/HR)
142	0	66.74
VOC (TONS/YEAR) =		292.32

TOTAL DRAINS EMISSION = 546.6

• Emission factor estimated by R.D. Truelove and S. Cuthbertson

COOLING TOWER EMISSIONS

AP-42 FACTOR = .7 LB VOC/MM GAL. WATER

WATER FLOW GAL/MIN	VOC (TONS/YEAR)
35500	6.53

FORSITE CORPORATION

1600 Pacific Avenue
Suite 2620
Dallas, Texas 75201
(214) 740-0040

May 3, 1990

P-89229

Mr. Bruce M. Schroer
Chemical Engineer
PED Environmental
220-11 South Tower
1000 S. Pine
Ponca City, Oklahoma 74603

Subject: Transmittal of fugitive equipment leak VOC emission data
Lake Charles Refinery

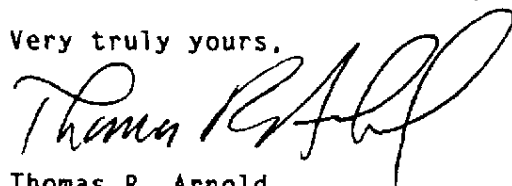
Dear Bruce:

The enclosed Tables 1 and 2 provide a summary of the data that were used to estimate VOC emissions from sources of fugitive equipment leaks at the Lake Charles Refinery.

The summary is based on the refinery-wide equipment count data tables that were submitted to the LDEQ in the March 22, 1990 Permit Correction - Equipment Leak VOC Emissions. We have now merged the new (1989) project specific equipment count with the 1988 process unit total equipment count provided by the Refinery. Please note that since the Refinery's monitoring contractor did not tag equipment in heavy liquid service during 1988, no actual unit specific counts for this equipment exist. For our summary, the total heavy liquid component counts are based on the refinery wide counts included in the 1986 Consolidated Permit (Permit No. 0520-00005-02). Please note that we allocated the heavy liquid equipment count to all process units based on the ratio of the unit's total light liquid component count to the total refinery equipment count. This is a conservative assumption that should not adversely affect the unit specific emissions since the emissions from this equipment accounts for less than 5 percent of the total fugitive VOC emissions. Any discrepancies in this allocation will be corrected later during 1990 as the heavy liquid components are tagged for each unit.

I understand that you will use this data and calculation methodology in preparing the 1989 SARA 313 emission estimates for the refinery. Please call if you have any questions.

Very truly yours,



Thomas R. Arnold
Project Manager

Attachments:

SAL 000004306

TABLE 1
1989 ESTIMATED EQUIPMENT LEAK VOC SC I.D. PROCESS UNIT
CONOCO LAKE CHARLES REFINERY

PROCESS UNIT	EQUIPMENT LEAK VOC SOURCES (a)														Total
	Valves (Gas)	Valves Light Liquid	Valves Heavy Liquid	Pump Seals Light Liquid	Pump Seals Heavy Liquid	Compressor Seals (Hydrocarbon)	Pressure Relief Valves (Controlled)(b)	Pressure Relief Valves (Uncon- trolled)(b)	Flanges (3.0 x # Valves)	Open-ended Lines	Sampling Connections	Drains (Uncontrolled)(c)	Drains (Controlled)(c)	Junction Boxes	
SIP UNITS															
#1 Catcher	74	0	40	0	1	0	0	0	412	0	0	2	0	0	520
FOG (#2 Cat)	583	1012	983	18	19	1	10	0	8819	0	0	88	0	15	11549
#2 Coker	481	74	308	4	7	0	2	0	3108	0	0	43	0	7	4054
#2 Crude	439	474	808	10	11	1	0	0	8107	0	0	58	0	10	8815
#2 HDS	238	212	250	0	8	0	4	0	2511	0	0	38	0	8	3267
#2 Reformer	388	129	274	2	8	1	3	0	2788	0	0	30	0	5	3584
#1 Crude	298	999	981	11	12	1	4	0	2688	0	0	88	0	10	7208
#1 Reformer	748	438	853	13	14	0	1	0	8814	0	0	87	0	10	8548
#5 HDS	201	39	132	0	3	0	0	0	1338	0	0	11	0	2	1727
#8 HDS	148	0	80	2	2	0	0	0	812	0	0	0	0	0	1041
Add Plant	185	0	108	0	2	0	0	0	1084	0	0	0	0	0	1387
Alky	282	888	520	18	11	1	14	0	8293	0	0	0	0	0	6807
Amine	871	838	985	14	15	0	12	0	8748	0	0	34	0	8	8700
Cat Poly	224	812	480	18	10	0	0	0	4888	0	0	28	0	4	8017
EDC	0	53	28	0	1	0	0	0	288	0	0	0	0	0	377
Gas Recovery Plant	314	483	428	13	9	8	8	0	4298	0	0	57	0	10	5578
Moles	75	31	88	0	1	0	1	0	888	0	0	10	0	2	774
PSC	318	848	898	25	15	0	12	0	7048	0	0	47	8	8	8115
PSA	830	280	813	4	13	2	0	0	8237	0	0	22	0	4	8015
Power House	250	0	141	0	3	0	0	0	1408	0	0	38	0	8	1848
SRU	138	0	88	0	2	0	1	0	817	0	0	88	0	15	1148
TCU	184	108	188	3	8	0	3	0	1887	0	0	28	8	8	2217
Tank Farm	482	2817	1848	100	45	0	4	0	18818	0	0	81	35	18	24434
COR	0	0	118	0	8	0	2	1	428	0	0	9	0	1	588
Marine Dock	30	888	200	0	8	0	0	0	3334	0	0	8	0	0	4288
Total SIP	7478	10390	9813	259	230	7	73	1	100812	8	0	808	48	142	129358
LESHAP UNITS															
SHAD	0	171	0	0	0	0	0	0	818	0	0	0	0	0	787
VCM	85	129	0	0	0	1	0	0	798	0	0	0	0	0	1022
VHAD	0	34	0	0	0	0	0	0	122	0	0	0	0	0	158
Total LESHAP	85	334	0	0	0	1	0	0	1837	0	0	0	0	0	1965
NSPS UNITS															
No. 1 Coker	991	848	95	15	2	0	8	0	8248	0	1	0	45	8	8057
LVT-200	38	118	108	8	8	0	8	0	1818	0	0	8	8	1	1328
#2-Cat	180	0	40	0	1	0	1	0	790	0	0	0	0	0	1012
#3-VAC	178	22	44	0	1	0	2	0	887	0	0	0	0	0	1137
#4-HDS	553	221	173	7	8	3	14	0	3408	0	0	0	33	8	4422
#7 HDS	221	0	48	0	1	0	0	0	873	0	0	0	15	2	1283
#8-HDS	118	0	28	0	1	0	0	0	811	0	0	0	8	1	882
CAYO	848	333	218	11	8	1	3	0	4382	0	0	0	11	2	5531
FEED PREP	84	28	18	0	0	0	0	0	383	0	0	0	8	1	480
Total NSPS	2998	1370	787	39	24	4	30	0	18488	0	1	0	128	22	23871
TOTAL LESHAP/NSPS	3082	1704	787	39	24	8	30	8	20028	8	1	8	128	22	25837

(a) Equipment counts based on : 1) ARI data on total equipment by unit at the end of 1988 (except equipment in heavy liquid service) and 2) FORSITE project specific equipment counts for 1989 projects. All equipment counts are summarized in the March 22, 1990 submittal to the LDEQ "Request for Permit Correction - Equipment Leak VOC Emissions".

(b) Pressure relief valves that are listed as "controlled" vent to flares with a 98% destruction efficiency.

(c) Drains that are listed as "uncontrolled" are existing drains (Pre 1988) and were not installed with a "p-leg" and a waterseal trap. All drains (post 1988) have been installed with a "p-leg" and a waterseal trap regardless if the unit is a SIP or LESHAP/NSPS unit.

TABLE 2
1990 ESTIMATED EQUIPMENT LEAK VOC EMISSIONS BY PROCESS UNIT

(All emission rates are lb/hr)
CONOCO LAKE CHARLES REFINERY

EQUIPMENT LEAK VOC SOURCE EMISSIONS (a)																
PROCESS UNIT	Valves (Gas)	Valves Light Liquid	Valves Heavy Liquid	Pump Seals Light Liquid	Pump Seals Heavy Liquid	Compressor Seals (Hydrocarbon)	Pressure Relief Valves (Controlled)(b)	Pressure Relief Valves (Uncon- trolled)(b)	Flanges (3.8 x # Valves)	Open-ended Lines	Sampling Connections	Drains (Uncontrolled)(c)	Drains (Controlled)(c)	Junction Boxes	Total	
Emission Factor (SIP)	0.00398	0.01316	0.00051	0.09983	0.04720	0.19710	0.16213	0.16213	0.00022	0.00370	0.03310	0.07000	-	0.47000		
Emission Factor (LESHAP/NSPS)	0.00391	0.00493	0.00031	0.03368	0.04720	0.19710	0.08860	0.08860	0.00022	0.00370	0.03310	-	0.03500	0.07000		
SIP UNITS																
#1 Catcher	0.29	0.00	0.02	0.00	0.04	0.00	0.00	0.00	0.08	4.44	0.00	0.00	0.14	0.00	0.00	1
FGC (#2 Cat)	2.32	13.32	0.45	1.25	0.91	0.20	0.00	0.00	1.96	20.41	0.00	0.00	8.23	0.00	7.06	34
#2 Coker	1.91	0.97	0.18	0.28	0.32	0.06	0.01	0.00	0.88	4.32	0.00	0.00	3.01	0.00	3.29	11
#2 Crude	1.75	8.24	0.26	0.70	0.52	0.20	0.00	0.00	1.12	10.75	0.00	0.00	4.08	0.00	4.70	20
#2 HDS	0.94	2.79	0.13	0.42	0.26	0.00	0.01	0.00	0.36	5.89	0.00	0.00	2.52	0.00	2.82	10
#2 Reform	1.88	1.70	0.14	0.14	0.28	0.26	0.01	0.00	0.81	4.53	0.00	0.00	2.10	0.00	2.35	9
#3 Crude	1.18	9.20	0.28	0.77	0.57	0.26	0.01	0.00	1.22	13.42	0.00	0.00	4.13	0.00	4.70	22
#3 Reform	2.97	8.78	0.33	0.81	0.67	0.00	0.00	0.00	1.45	12.44	0.00	0.00	3.98	0.00	4.70	21
#5 HDS	0.80	0.51	0.07	0.00	0.14	0.00	0.00	0.00	0.29	1.81	0.00	0.00	0.77	0.00	0.94	4
#6 HDS	0.58	0.00	0.04	0.14	0.08	0.00	0.00	0.00	0.18	1.02	0.00	0.00	0.00	0.00	0.00	1
Add Plant	0.78	0.00	0.05	0.00	0.11	0.00	0.00	0.00	0.24	1.18	0.00	0.00	0.00	0.00	0.00	1
Alky	1.12	8.79	0.27	1.28	0.54	0.20	0.00	0.00	1.16	13.33	0.00	0.00	0.00	0.00	0.00	13
Amine	2.27	3.40	0.34	0.87	0.68	0.00	0.04	0.00	1.46	14.25	0.00	0.00	2.34	0.00	2.82	19
Cat Poly	0.86	8.08	0.23	1.11	0.47	0.00	0.00	0.00	1.03	11.74	0.00	0.00	1.82	0.00	1.86	15
EDC	0.00	0.70	0.01	0.00	0.00	0.00	0.00	0.00	0.08	0.8	0.00	0.00	0.00	0.00	0.00	1
Gas Recovery Plant	1.25	8.96	0.22	0.81	0.44	0.00	0.00	0.00	0.85	9.73	0.00	0.00	3.98	0.00	4.70	18
Molox	0.30	0.41	0.03	0.08	0.06	0.00	0.00	0.00	0.13	0.93	0.00	0.00	0.70	0.00	0.84	3
PBC	1.25	12.45	0.38	1.74	0.72	0.00	0.04	0.00	1.35	18.07	0.00	0.00	3.29	1.75	3.78	27
PSA	3.30	3.82	0.31	0.28	0.83	0.28	0.00	0.00	1.37	10.4	0.00	0.00	1.54	0.00	1.86	14
Power House	1.00	0.00	0.07	0.08	0.18	0.00	0.00	0.00	0.31	1.53	0.00	0.00	2.88	0.00	2.82	7
SRU	0.95	0.00	0.04	0.00	0.09	0.00	0.00	0.00	0.18	0.8	0.00	0.00	6.18	0.00	7.06	14
TCU	0.77	1.42	0.09	0.21	0.17	0.00	0.01	0.00	0.37	3.03	0.00	0.00	2.03	1.75	2.35	9
Tank Farm	1.88	37.07	0.99	8.96	2.18	0.00	0.01	0.00	4.16	50.26	0.00	0.00	4.27	12.25	7.52	77
CCR	0.00	0.00	0.06	0.00	0.42	0.00	0.01	0.16	0.06	0.73	0.00	0.00	0.63	0.00	0.47	2
Marine Dock	0.12	9.16	0.10	0.00	0.42	0.00	0.00	0.00	0.72	10.13	0.00	0.00	0.00	0.00	0.00	11
Total SIP	29.78	136.73	8.08	18.83	10.88	1.38	0.24	0.16	22.00	0.00	0.00	58.42	15.75	86.74	363.14	
LESHAP UNITS																
SHAD	0.00	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.93	0.00	0.00	0.00	0.00	0.98	
VCM	0.98	0.84	0.00	0.00	0.00	0.20	0.00	0.00	0.18	1.18	0.00	0.00	0.00	0.00	1.38	
VHAD	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.2	0.00	0.00	0.00	0.00	0.20	
Total LESHAP	0.98	1.85	0.00	0.00	0.00	0.20	0.00	0.00	0.34	0.00	0.00	0.00	0.00	0.00	2.56	
NSPS UNITS																
No. 1 Coker	3.87	3.21	0.05	0.84	0.08	0.00	0.49	0.00	1.37	9.13	0.00	0.00	1.58	0.58	11.80	
LVT-200	0.23	0.58	0.05	0.22	0.26	0.00	0.49	0.00	0.22	1.58	0.00	0.00	0.28	0.07	2.43	
#2-Cat	0.70	0.00	0.02	0.00	0.05	0.00	0.10	0.00	0.17	0.94	0.00	0.00	0.00	0.00	1.05	
#3-VAC	0.70	0.11	0.02	0.00	0.06	0.00	0.20	0.00	0.20	1.09	0.00	0.00	0.00	0.00	1.29	
#4-HDS	2.18	1.09	0.09	0.25	0.22	0.98	0.38	0.00	0.78	5.16	0.00	0.00	1.14	0.42	8.12	
#7 HDS	0.86	0.00	0.03	0.00	0.06	0.00	0.00	0.00	0.21	1.16	0.00	0.00	0.53	0.21	1.90	
#8-HDS	0.48	0.00	0.01	0.00	0.03	0.00	0.00	0.00	0.11	0.6	0.00	0.00	0.28	0.07	0.96	
CRYO	2.53	1.65	0.11	0.39	0.26	0.20	0.30	0.00	0.95	6.11	0.00	0.00	0.39	0.14	8.93	
FEED PREP	0.21	0.13	0.01	0.00	0.02	0.00	0.00	0.00	0.06	0.45	0.00	0.00	0.28	0.07	0.80	
Total NSPS	11.73	6.78	0.39	1.40	1.12	0.78	2.06	0.00	4.07	0.00	0.03	0.00	4.48	1.54	35.28	
TOTAL LESHAP/NSPS	12.08	8.43	0.39	1.40	1.12	0.98	2.06	0.00	4.41	0.00	0.03	0.00	4.48	1.54	37.83	

(a) Emission factors for SIP and LESHAP/NSPS units were developed specifically for the Lake Charles Refinery based on the leak/no-leak monitoring results available from the ongoing leak detection and repair program. The use of these source specific emission factors has been approved by the LDGO. The basis for the factors is described in the Refinery's March 22, 1990 submittal to the LDGO "Request for Permit Correction - Equipment Leak VOC Emissions".

MISCELLANEOUS SMALL PROJECTS

NEW PURGATIVE EQUIPMENT

PROJECT NAME	DESIGN DATE	UNIT	SIP OR ASP3	GA5	LL	HL	RV	PUMPS LL	PUMPS HL	COMP	FLANGES	OTHER 1/YR	VOC 1/YR	NOTES
UCC Electrolytic Amine Clean-up	1/25/90	Amine	SIP			21					37		0.35	
Antifoam Feed for the Primary Amine System	3/21/90	Amine	SIP										0.00	No hydrocarbon emissions added
FCC Main Inlet/Prefrac Debutillenecking	1/70/90	FCC	SIP										0.00	No hydrocarbon emissions added
Emergency Gas Dis to FCC Prefrac	4/70/89	FCC	SIP			10							0.06	
Replace FCC Interstage Coolers	8/10/89	FCC	SIP	1							25	-0.21	-0.06	Other: Removes 10 gas valves and 36 flanges
FCC Instrument Air System Modifications	12/27/89	FCC	SIP										0.00	No hydrocarbon emissions added; sent to fony
FCC Instrument Air System Modifications	1/12/90	FCC	SIP										0.00	No hydrocarbon emissions added
FCC Prefrac/Main Inlet Tower Modifications	2/1/90	FCC	SIP			2					1		0.01	
H & Furnace Bypass - FCC	2/1/90	FCC	SIP			1					4		0.01	
FCC Hydraulic Actuators	2/1/90	FCC	SIP			52			2		187		0.71	
FCC Regenerator Catalyst Distributor Mods	2/8/90	FCC	SIP										0.00	No hydrocarbon emissions added
Remo AFE & Revised SA Hl-Ins - Advd Ctl	2/9/90	FCC	SIP										0.00	Only installs orifice plates
Pinus Quench Mods	2/12/90	FCC	SIP										0.00	No hydrocarbon emissions added
HCO Draw to LCO Blowdown	2/26/90	FCC	SIP			3					11		0.02	
FCC Regenerated Catalyst Stripping Mods	2/26/90	FCC	SIP										0.00	No hydrocarbon emissions added
Shifts Gas to Main Fractionator	2/28/90	FCC	SIP	1							4	-0.02	0.00	Other: Removes 1 gas valve
Atstrugen to Jupiter	1/11/90	N/A											0.00	No hydrocarbon emissions added
Upgrade Viste Custody Transfer Meters	1/11/90	N/A											0.00	No hydrocarbon emissions added
Improved Resid Preheat	4/6/90	No. 2 Coker	SIP			16					58	-0.01	0.00	Other: Removes 1 HL valve and 4 flanges
Measure Coker HD System Offgas to Flare	4/19/90	No. 2 Coker	SIP	3							4		0.02	
North Tank Farm Pump Seals Upgrade	4/25/90	No. 2 Coker	SIP			19					60		0.31	
Coker Steamout Block Valves	5/5/90	No. 2 Coker	SIP			2					2		0.01	
Heater 3001/Pass 4 Flow Control Valve	1/16/90	No. 2 Coker	SIP			1					4	0.01	0.00	Other: Removes 1 HL valve and 4 flanges
No. 2 Coker Antifoam Diluent	2/23/90	No. 2 Coker	SIP			2					1		0.01	
Quench Oil System Mods	2/28/90	No. 2 Coker	SIP			4					14		0.02	
No. 2 Coker Fractionator Water Wash	3/1/90	No. 2 Coker	SIP										0.00	3 valves in sour water service
No. 2 CTU RV-290 Modification	4/21/89	No. 2 Crude	SIP										0.00	No hydrocarbon emissions added
No. 2 CTU Overhead Controls Project	12/19/89	No. 2 Crude	SIP										0.00	No hydrocarbon emissions added
No. 5 HDS to Repetitive Service	1/12/90	No. 5 HDS	SIP	ADD 0.55		24			2		86		0.55	
Cascade Flow Control - No. 6 HDS Stripper	1/16/90	No. 6 HDS	SIP										0.00	No hydrocarbon emissions added
PBC Modifications	4/17/89	PBC	SIP			8					29	-0.06	0.01	Other: Removes 10 LL valves from original proj
PBC Unit Amine Contactor Revisions	2/13/90	PBC	SIP		3						11	-0.06	0.12	Other: Removes 1 LL valve (finalizes PBC Model)
Replace Fuel Gas Mixing Drum, D-27	2/14/90	PBC	SIP	1							11		0.06	
Plant Wide Steam During Total Plant SD	4/22/90	Power Plant	SIP										0.00	No hydrocarbon emissions added
Compressors 3701 and 3702 Lube Oil Drains	4/19/90	PSA	SIP	3							14		0.06	
Rebuild Phenolic Caustic Tanks	5/4/90	SAP	SIP										0	Material <10 wt% VOC
Gas Blending Mods: New Butane Ctrl Loop	5/2/90	Tank Farm	SIP		15						54		0.32	
Revise Diesel Salt Filter Relief Project	1/30/90	Tank Farm	SIP			14					50	0.41	0.55	Also add 4 temp (emissions - Junction box)
Improve Recovered Oil Processing Project	3/14/90	Tank Farm	SIP		1						4		0.06	
Diesel Barge Loading Project	3/15/90	18/Docks	SIP			15					54	0.32	0.81	Other: 100 MMBL/mth diesel barge loading
EU Short Decoke Line	10/9/89	Thermal	SIP			9					32		0.05	
Replace TCU Soaking Drum	2/6/90	Thermal	SIP			14					54	-0.8	0.01	Other: Removes 16 HL, 1 RV, and 61 flanges
Jet Gas System S/D Mods - Phase II	1/16/89	Various	SIP	23							83		0.48	
Jet Gas System S/D Mods - Phase III	10/13/89	Various	SIP	42							153		0.88	Sent to fony french
Eliminate Hot Oil Blowdown	3/22/90	Various	SIP	8	3	4					34	-0.58	0.21	Other: Removes 5 HL, 9 LL, 50 flanges
Divert Sabine Water Clarifier Solids	10/24/89	Wastewater	SIP										0.00	No hydrocarbon emissions added
Eliminate HIC Vapors at CPE Traps	11/20/89	Wastewater	SIP								27		0.13	
				94	22	227	0	0	4	0	1239	0.56	5.59	

MISCELLANEOUS SMALL PROJECTS

NEW PUMPTIME EQUIPMENT

PROJECT NAME	DESIGN DATE	UNIT	SIP DB MSPS	GAS	LL	HL	RT	LL	HL	PUMPS	COMP	FLANGES	OTHER T/YR	IOC T/YR	NOTES
MAD to Sour Diesel Charge Line	4/5/90	MAD	LESHAP		3					Add 0.08		11		0.08	Benzene = 0.02 T/yr; already included in M-10
271 Hydrogen MS Trap	1/18/90	LVI-200	MSPS	1								32		0.10	Emissions are MS only; MS = 1.2 w/13
P-2701 Low Pressure Shutdown, LVI Unit	1/18/90	LVI-200	MSPS			3						11		0.02	
LVI Reflux Drum Pressure Control	4/16/90	LVI-200	MSPS	2								7		0.04	
NO. 2 HDS Preheat Rods	5/27/90	NO. 2 HDS	MSPS			5						18		0.03	French - PID 4/12/90)
Tank 30 Tapers to Flare	1/4/90	Tank Farm	Both												Project - already asst
M-10 Feed Drum Level Gauges	4/5/90	M-10	MSPS												Benzene = 0.02 T/yr (finalizes M BI Project)
Heat/Cut Bypass to Heavy Reformate Rndom	3/20/90	M-21	LESHAP		4							14		0.10	
				11	7	6	0	0	0	0	0	93	0	0.27	

SAL 000004310

PROJECT:

CALCULATION SHEET

Project No. / Client

892R/ COMOCO, Lake Charles Refinery

Description:

MISCELLANEOUS SMALL PROJECTS 1989 AND THROUGH 5/11/90 (EP-80)

Preparation:

Prepared By: G. Smith, FORSITE 5/29/90

Checked By: T. Arnold

Date: 5/29/90

OBJECTIVE:

To summarize fugitive VOC emissions due to equipment leaks from various "miscellaneous small projects" during 1989 and part of 1990.

INPUTS:

Table 1 presents a summary of the refinery's source-specific emission factors and equipment counts for SIP monitored equipment, and presents the method used to calculate the fugitive VOC emissions from equipment monitored under SIP. Table 2 is similar to Table 1 except that the information applies to NONSIP/COMAF monitored equipment.

CALCULATIONS:

TABLE 1
SUMMARY OF EQUIPMENT LEAK VOC SOURCES IN THE SIP MONITORING PROGRAM (EP-80)
COMOCO LAKE CHARLES REFINERY

Equipment Monitored Under SIP Program Only												
Project / Permit Date	Valves (Gas)	Valves (Light Liquid)	Valves (Heavy Liquid)	Pump Seals (Light Liquid)	Pump Seals (Heavy Liquid)	Compressor Seals (Hydrocarbon)	Pressure Relief Valves (Gas)	Flanges (a)	Open-ended Lines	Sampling Connection	Drains	Junction Boxes
SIP Program Emission Factors for Equipment Leaks of VOC (5/7/89) (b) (c)												
	0.00394	0.01310	0.00051	0.06943	0.04720	0.19710	0.16213	0.00022	0.00370	0.03310	0.07000	0.47000
TOTAL EQUIPMENT COUNT FOR SIP SOURCES (EP-80)	7184	9937	9913	250	230	6	74	97204	0	0	851	141
Submitted 3/22/90 to LDEQ as part of 1989 Fugitive VOC Emissions Permit Correction												
FCC Fractionation Modifications Project												
Equipment in VOC Service Deleted	0	8	6	0	1	0	0	50	0	1	0	0
New Equipment in VOC Service Added	0	69	0	2	0	0	0	240	0	1	1	0
Light LYT Railcar Loading												
Equipment in VOC Service Deleted	0	0	0	0	0	0	0	0	0	0	0	0
New Equipment in VOC Service Added	0	0	2	0	0	0	0	7	0	0	0	0
Miscellaneous Small Projects 1989/1990												
Equipment in VOC Service Deleted	11	20	23	0	0	0	1	191	0	0	0	0
New Equipment in VOC Service Added	94	15	227	0	4	0	0	1250	0	0	0	1
UPDATED EQUIPMENT COUNT FOR SIP SOURCES (EP-80)	7267	9993	10113	252	233	6	73	98478	0	0	862	142
TOTAL EMISSIONS FROM SIP SOURCES (lb/hr)	28.92	131.51	5.16	17.55	11.00	1.56	0.40	21.67	0.00	0.00	60.17	66.74
TOTAL EMISSIONS FROM SIP SOURCES (T/yr)	126.68	576.08	22.59	76.85	48.17	6.91	1.73	94.89	0.00	0.00	263.54	292.32

Table 1. Total For SIP Monitored Equipment For Total Refinery
344.68 (lb/hr)
1509.70 (T/yr)

(a) The number of flanges for equipment is estimated to be 3.6 x the total number of valves based on the recognized industry average of 3.6 flanges/valve.

(b) SIP emission factors are based on 1988 Lake Charles Refinery leak/no-leak monitoring data. Sources subject to the SIP monitoring requirements are monitored quarterly except for pump seal light liquid service, which are monitored annually.

(c) Total SIP Source emissions are determined by multiplying the total equipment count by the corresponding emission factor and converting the lb/hr value to T/yr assuming 8760 hr/yr and 2, EP-80 (a)

06/04/91

12:59

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FORSITE

003

TABLE 2
SUMMARY OF EQUIPMENT LEAK VOC SOURCES IN THE LESHAP or NSPS MONITORING PROGRAMS (EP-80)
CONOCO LAKE CHARLES REFINERY

Project / Permit Date	Equipment Monitored Under LESHAP or NSPS Programs Only											
	Valves (Gas)	Valves (Light Liquid)	Valves (Heavy Liquid)	Pump Seals (Light Liquids)	Pump Seals (Heavy Liquids)	Compressor Seals (Hydrocarbon)	Pressure Relief Valves (Gas)	Flanges (a)	Open-ended Lines	Sampling Connection	Drains	Junction Boxes
LESHAP and NSPS Programs Emission Factors for Equipment Leaks of VOC (lb/hr) (b):												
	0.00391	0.00495	0.00051	0.03588	0.04720	0.19710	0.09060	0.00022	0.00370	0.03310	0.03500	0.07
TOTAL EQUIPMENT COUNT FOR NSPS / LESHAP SOURCES (EP-80)	3092	1704	1212	39	36	5	30	23584	0	1	96	13
FCC Fractionation Modifications Project												
Equipment in VOC Service Deleted	0	0	0	0	0	0	0	0	0	0	0	0
New Equipment in VOC Service Added	0	0	0	0	0	0	0	0	0	0	0	0
Light LVT Bulbcar Loading												
Equipment in VOC Service Deleted	0	0	0	0	0	0	0	0	0	0	0	0
New Equipment in VOC Service Added	0	0	0	0	0	0	0	0	0	0	0	0
Miscellaneous Small Projects 1989/1990												
Equipment in VOC Service Deleted	0	0	0	0	0	0	0	0	0	0	0	0
New Equipment in VOC Service Added	11	7	0	0	0	0	0	13	0	0	0	0
EQUIPMENT COUNT FOR LESHAP/NSPS SOURCES (EP-80)	3103	1711	1220	39	36	5	30	23679	0	1	96	13
TOTAL EMISSIONS FROM NSPS / LESHAP SOURCES (lb/hr) (c)	12.13	8.47	0.62	1.40	1.70	0.99	0.06	4.77	0.00	0.03	3.36	0.91
TOTAL EMISSIONS FROM NSPS / LESHAP SOURCES (T/yr) (c)	53.14	37.10	2.73	6.13	7.44	4.32	0.26	20.89	0.00	0.14	14.72	3.99
Table 2 Total for LESHAP or NSPS Monitored Equipment												36.44 (lb/hr) 150.05 (T/yr)
Table 1 Total for All SIP Monitored Equipment												344.68 (lb/hr) 1509.70 (T/yr)
TOTAL For all SIP, LESHAP, and NSPS Monitored Equipment												379.12 (lb/hr) 1660.56 (T/yr)

(a) The number of flanges for equipment is estimated to be 3.6 x the total number of valves based on the recognized industry average of 3.6 flanges/valve.
(b) LESHAP/NSPS emission factors are based on 1988 Lake Charles Refinery leak/no-leak monitoring data. Sources subject to the LESHAP/NSPS monitoring requirements are monitored monthly.
(c) Total LESHAP/NSPS source emissions are determined by multiplying the total equipment count by the corresponding emission factor and converting the lb/hr value to T/yr assuming 8760 hr/yr.

EP-80 (b)

ME-05 1990 FINAL UNIT YIELD REPORT - LCR FOR PAUL RADY

UNIT	DESCRIPTION	DAYS ON STREAM
3	#3 CTU & VAC	✓340.00
10	#4 HDS	✓336.29
14	#5 HDS	✓337.85
24	MTBE	140.45
82	#3 CRU & HDS (REFORMER)	✓344.87
25	LVT - 200	<u>274.07</u> MOLEX & LS-HAD LV-HAD
	#1 HDS SHUTDOWN AND MOST EQUIPMENT WENT TO LVT - 200	
38	REGULAR COKER	30.79
39	PREMIUM COKER	298.36
	SUBTOTAL	✓329.15 #1 COKER
56	#1 CALCINER	121.24
96	#2 CALCINER	306.82
79	#2 COKER	314.59
81	#2 COKER - ANODE	32.73
	SUBTOTAL	✓347.32 #2 COKER
75	GRP (GAS RECOVERY PLANT)	✓345.46
74	#6 HDS	✓332.62
84	#8 HDS	✓342.35
90	#7 HDS	✓328.17
89	HYDROGEN SYSTEM	350.47
85	FCC FEED PREP	✓326.37
86	CDR UNIT	195.00
2	#2 CRUDE UNIT (CTU)	✓353.87
35	FCC UNIT	✓316.93
83	CRYO GAS PLANT	✓340.97
41	CAT POLY UNIT	✓341.61
68	NP SPLITTER	343.78
50	LIGHT GASO SPLIT	351.76
62	#2 CRU & HDS (REFORMER)	✓310.22
63	REFORMATE SPLITTER	274.60
15	THERMAL CRACKER	✓317.92
42	CASINGHEAD UNIT (PBC)	✓348.26
43	ALKYLATION UNIT	✓328.64
23	ACID PLANT	✓329.91
91	SULFUR PLANT (SRU)	343.38
22	NASH PLANT	291.29
5	REGULAR BLENDING	7.00
6	UNLEADED BLENDING	303.00
7	SUPER UNLEAD BLENDING	155.00
8	MID GRADE UNL BLEND	70.00

THE MOLEX UNIT IS A PART OF VISTA. WE CHARGE CDR & LVT - 200 WITH MOLEX RAFFINATE & #2 CRU WITH MOLEX GASOLINE. WE ALSO BLEND MOLEX RAFFINATE INTO JET FUELS, BUT WE DON'T HAVE A MOLEX UNIT ON OUR PROPERTY.

LV-HAD & LS-HAD ARE RECEIVED FROM VISTA AND DUPONT-ORANGE RESPECTIVELY AND CHARGED TO THE #3 CTU. THERE ARE NO PROCESS

FUGITIVE HYDROCARBON EMISSIONS
CONOCO LAKE CHARLES REFINERY

(5/8/91)

Source	QUANTITY	MONITORING INTERVAL	EMISSION FACTOR (lb/hr)	YEARLY EMISSIONS (T/yr)
<u>36a Fugitive Leaks</u>				
o See EP-80, recalculated using EPA 10/88 leak/ no-leak emission factors				
<u>36b Cooling Water System</u>				
Cooling Water	55.924	N/A	0.700 (1)	19.5
	(10 ⁶ gal/yr)		Subtotal	<u>19.5</u>
<u>36c Wastewater System</u>				
Wastewater	683,280	N/A	0.200 (1)	68.3
	(10 ³ gal/yr)		Subtotal	<u>68.3</u>
<u>36d Barge Loading</u>				
o See EP-83, recalculated to correct inventory omissions				
<u>36e Rail Car and Sea Container Loading</u>				
o See EP-84, for recalculated railcar and sea container loading emission rates				
Total Emissions				<u>87.8</u>

Notes

1. These emission factors are from AP-42.

SAL 000004314

GRACE

DAVISON
CHEMICAL DIVISION

Equilibrium Fluid Catalyst Analyses

P.O. Box 2117 Baltimore, Maryland 21203-2117 Telephone (301) 659-9049

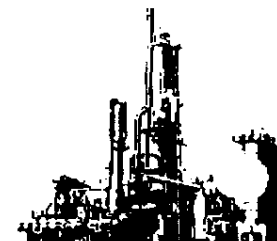
195

CONOCO-LCHARLES
CONTINENTAL OIL CO.
LAKE CHARLES LA

70602

CATALYST INVENTORY: 90 TONS
NOMINAL UNIT CAPACITY: 32,000
UNIT TYPE: ORTHO F

DATE: 05-07-91



CURRENT CATALYST: S NOVA-D

Date Rec'd.	Sample Identifi- cation	Dated	Activity			Physical Properties								Chemical Properties								UCS	RE203	Remarks
			MA	C.F.	G.F.	SA ml/gm.	P.V. cc/gm.	ABD. gm/cc.	Par. Size Microns				Al ₂ O ₃ Wt. % D.B.	Na Wt. % D.B.	Fe Wt. % D.B.	C Wt. % D.B.	V ppm D.B.	Ni ppm D.B.	Cu ppm D.B.	Sb ppm D.B.				
									6-20 Wt. %	6-40 Wt. %	6-80 Wt. %	APS												
050191	LC 415	042691	66	1.6	2.1	111	.37	.63	1	8	73	67	43.8	.30	.59	.03	2084	597	30	13	24.26	2.25		
050391	LC 424	043091	67	1.2	1.8	109	.36	.62	0	6	73	67	43.9	.28	.59	.06	2054	522	28	34	-	2.26		
EXEMPT																								

SAL 000004315

SAL 000004315

MAY 21 '91 7:50 FROM CONOCO TSC

PAGE.003

"Major" Streams

1. No. 3 CTU & Vac. - Sour Crude, Stab. OH, LSR, Naphtha, Kerosene, and Diesel.
2. No. 2 CTU - Sweet Crude, Stab. OH, LSR, Naphtha, Kerosene, and Diesel.
3. No. 4 HDS - Stripper OH, Kerosene, Diesel, Naphtha, and LSR.
4. No. 5 HDS - Diesel and Overhead Liquid.
5. No. 3 CRU & HDS - Naphtha, Reformate, #3 Strip. OH, Strip/Stab. Offgas, and #3 Deprop. OH.
6. No. 1 Coker - Coker Wet Gas and Coker Gasoline.
7. No. 2 Coker - Coker Wet Gas and Coker Gasoline.
8. Gas Recovery Plant - Misc. Lt Ends, Coker TCU Gas, Cryo P-B, Thermal Gasoline, Coker Gasoline, Abs. Tail Gas, P-P, and B-B.
9. No. 6 HDS - Stripper OH., HDS Gasoline(LSR), and Distillate.
10. No. 7 HDS - #6 HDS Stripper Reflux and Strip. Ovhd Gas.
11. FCC Feed Prep. - Diesel and Slop Oil.
12. FCC - Abs. Tail Gas, P-P, B-B, and FCC Gasoline.
13. Cryo Gas Plant - Cryo Feed Gas, Cryo Gas to Fuel, and P-B.
14. Cat. Poly - P-P, Poly Gasoline, Propane, and Butane.
15. No. 2 CRU & HDS - Naphtha, Molex Gasoline, Stab. Gas, Stab. Liquid, and Reformate.
16. No. 1 HDS - Kerosene and Stab. OH Liquid.
17. Thermal Cracker - Thermal Gasoline and Fract. Gas OH.
18. Casinghead Unit - Field PBC, Ref. PBC Liquid, Misc. Lt. Ends, P-P, Deeth Tail Gas, B-B, Casinghead Gasoline, Propane, Butane, and Iso-butane.
19. Alkylolation Unit - B-B, i-Butane, FCC P-P, Propane, Butane, and Alkylate.
20. Tank Farm - Regular, Unleaded, Super Unleaded, Diesel, Kerosene, Naphtha, Crude, Normal Paraffin Feedstock and Fuel Gas.
21. Acid Plant - Amine Acid Gas and SWS Gas.
22. Molex - Kerosene, Molex Gasoline (LSR), and Heavy Raffinate.
23. L-SHAD - Sabine Aromatic Dist.
24. L-VHAD - HAD
25. Boilers - Fuel Gas.
26. Heaters - Fuel Gas.

All other units contain no SARA chemicals.

Sources:

- See 1989 Lake Charles Bluebook chapter and 1988 and 1989 Documentation.

APPENDIX J

PRODUCT LOADING RELEASE DATA AND CALCULATIONS

SARA TITLE III, SECTION 313
1990 TOXIC CHEMICAL RELEASE INVENTORY
LAKE CHARLES REFINERY

SAL 000004317

Product Loading Release

Product loading releases are calculated using AP-42(*) correlations. These correlations were put into spreadsheet format. The required data needed and the source of that data is as follows:

1. Product Thruput(bbls) - Product loading records attached provided by Reid Trezell, Lake Charles Refinery.
2. VRU Efficiency - VRU efficiency according to Clyde Rhodes, LC Transportation.
3. Vapor Molecular Weight - See Emission Factors chapter.
4. Saturation Factor - Splash loading with vapor recovery. (1988 documentation)
5. Vapor Pressure - See Emission Factors chapter.
6. Temperature - See Emission Factors chapter.
7. Compositional Data - See Process Stream chapter.

Note:

- * - AP-42 Chapter 4.4, Transportation and Marketing of Petroleum Liquids.

LAKE CHARLES LOADING RACK EMISSION

COMPOSITION	= REG. GASO.	VOC LOSS (LBS./YR.)	COMPOSITION LOSS (LBS./YR.)								
			BNZ	TOL	ETB	XYL	CYHX	CUM	PCUM	NAPH	STY
THRUPUT(BBLS)	= 46313	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
VRU EFF (%)	= 87.5		1.8	9.1	2.2	10.6	BD	4.3	2	BD	BD
VAPOR MW	= 62										
SAT. FACTOR	= 1	2941.536	9.763	14.38	1.138	4.759	0	1.049	0.498	0	ERR
VAPOR PRESS.	= 8.3										
TEMPERATURE	= 70										

COMPOSITION	= UL GASOLINE	VOC LOSS (LBS./YR.)	COMPOSITION LOSS (LBS./YR.)								
			BNZ	TOL	ETB	XYL	CYHX	CUM	PCUM	NAPH	STY
THRUPUT(BBLS)	= 1820488	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
VRU EFF (%)	= 87.5		2.5	6.1	1.6	7.7	BD	4.3	2	BD	BD
VAPOR MW	= 62										
SAT. FACTOR	= 1	115626.9	533.0	379.1	32.53	135.8	0	41.24	19.59	0	ERR
VAPOR PRESS.	= 8.3										
TEMPERATURE	= 70										

COMPOSITION	= SUL GASOLINE	VOC LOSS (LBS./YR.)	COMPOSITION LOSS (LBS./YR.)								
			BNZ	TOL	ETB	XYL	CYHX	CUM	PCUM	NAPH	STY
THRUPUT(BBLS)	= 545301	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
VRU EFF (%)	= 87.5		2.8	9.8	2.5	12	BD	4.3	2	BD	BD
VAPOR MW	= 62										
SAT. FACTOR	= 1	34634.39	178.8	182.4	15.22	63.43	0	12.35	5.869	0	ERR
VAPOR PRESS.	= 8.3										
TEMPERATURE	= 70										

COMPOSITION	= DIESEL	VOC LOSS (LBS./YR.)	COMPOSITION LOSS (LBS./YR.)								
			BNZ	TOL	ETB	XYL	CYHX	CUM	PCUM	NAPH	STY
THRUPUT(BBLS)	= 1410483	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
VRU EFF (%)	= 87.5		BD	BD	BD	BD	BD	BD	BD	3	BD
VAPOR MW	= 130										
SAT. FACTOR	= 1	203.6831	0	0	0	0	0	0	0	2.220	ERR
VAPOR PRESS.	= 0.009										
TEMPERATURE	= 70										

COMPOSITION	= JET FUEL	VOC LOSS	COMPOSITION LOSS (LBS./YR.)								
	(KEROSENE)	(LBS./YR.)	BNZ	TOL	ETB	XYL	CYHX	CUM	PCUM	NAPH	STY
THRUPUT(BBLS)	= 115830	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
VRU EFF (%)	= 87.5		BD	BD	BD	BD	BD	BD	BD	3	BD
VAPOR MW	= 130										
SAT. FACTOR	= 1	20.44365	0	0	0	0	0	0	0	0.182	ERR
VAPOR PRESS.	= 0.011										
TEMPERATURE	= 70										

FROM: Trekell, W. Reid

TO: RADY PAUL SOFTSWITCH/PCENGPE2

DATE: 06-11-91

TIME: 18:11

CC: Trekell, W. Reid

SUBJECT: SARA 313 DATA

PRIORITY: 1

ATTACHMENTS:

PAUL, I HOPE THAT THE FOLLOWING IS THE DATA YOU REQUIRE FOR THE REPORT. IF YOU HAVE ANY QUESTIONS, PLEASE LEAVE A MESSAGE ON MY AUDIX AND I'LL GET BACK TO YOU ON THURSDAY. I AM ATTENDING A REQUIRED SAFETY SCHOOL THRU WEDNESDAY.

REGULAR LEADED	46,313	UNLEADED	1,557,469	SUPER UNL.	545,301
MIDGRADE UNL.	263,019	#2 FUEL	1,410,483	JET/KEROS	115,830
LVT OIL	12,709	LVT-200	27,334	EP MIX	198,390
ISOBUTANE	610,491	N-BUTANE	780,959	B-B MIX	30,590
XP14W/C-140	64,166	ETHANOL	452		

THE UNITS ARE BARRELS. THIS DATA WAS SUPPLIED BY CLYDE RHODES, ETN 657-4013, BASED ON LOADING RACK THRU-PUT. I WASN'T SURE IF YOU REQUIRED ALL THIS DATA, BUT AT THIS POINT WOULD RATHER GIVE YOU TOO MUCH THAN TOO LITTLE. GARY SMITH WITH FORSITE WILL GIVE YOU A CALL WITH THE MTBE VALVE COUNT. THE THRU-PUT FOR THE UNIT WAS 141,800 BARRELS OR 37.6 MM LBS.

GOOD LUCK,
EID

SAL 000004321

Form R Part II. OFF-SITE LOCATIONS TO WHICH TOXIC CHEMICALS ARE TRANSFERRED IN WASTES

Cyclohexane
Conoco Lake Charles Refi

1. PUBLICLY OWNED TREATMENT WORKS (POTWs)

1.1 POTW name NA		1.2 POTW name NA	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip

2. OTHER OFF-SITE LOCATIONS (DO NOT REPORT LOCATIONS TO WHICH WASTES ARE SENT ONLY FOR RECYCLING OR REUSE).

2.1 Off-site location name BFI		2.2 Off-site location name CMI	
EPA Identification Number (RCRA ID No.) NA		EPA Identification Number (RCRA ID No.) LAD000777201	
Street Address Cities Service Hwy @ I-10		Street Address Rt 2, John Brannon Rd	
City Sulfur	County Calcasieu	City Carlyss	County Calcasieu
State LA	Zip 70664	State LA	Zip 70663
Is location under control of reporting facility or parent company? ☐ Yes ☒ No		Is location under control of reporting facility or parent company? ☐ Yes ☒ No	

2.3 Off-site location name NA		2.4 Off-site location name NA	
EPA Identification Number (RCRA ID No.)		EPA Identification Number (RCRA ID No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? ☐ Yes ☐ No		Is location under control of reporting facility or parent company? ☐ Yes ☐ No	

2.5 Off-site location name NA		2.6 Off-site location name NA	
EPA Identification Number (RCRA ID No.)		EPA Identification Number (RCRA ID No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? ☐ Yes ☐ No		Is location under control of reporting facility or parent company? ☐ Yes ☐ No	

☐ Check if additional pages of Part II are attached. How many? ☐

EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION

Cyclohexane
Conoco Lake Charles Ref

1. CHEMICAL IDENTITY (Do not complete this section if you complete Section 2.)

1.1 [Reserved]

1.2 CAS Number (Enter the number exactly as it appears on the 313 list. Enter NA if reporting chemical category.)
000110-82-71.3 Chemical or Chemical Category Name (Enter the name exactly as it appears on the 313 list.)
Cyclohexane

1.4 Generic Chemical Name (Complete only if Part I, Section 1.1 is checked "Yes." Generic name must be structurally descriptive.)

2. MIXTURE COMPONENT IDENTITY (Do not complete this section if you complete Section 1.)

Generic Chemical Name Provided by Supplier (Limit the name to a maximum of 70 characters (e.g., numbers, letters, spaces, punctuation).)

3. ACTIVITIES AND USES OF THE CHEMICAL AT THE FACILITY (Check all that apply.)

3.1 Manufacture the chemical:	a. ☐ Produce	If produce or import:	c. ☐ For on-site use/processing	d. ☐ For sale/distribution
	b. ☐ Import		e. ☐ As a byproduct	f. ☐ As an impurity
3.2 Process the chemical:	a. ☒ As a reactant	b. ☐ As a formulation component	c. ☐ As an article component	
	d. ☐ Repackaging only			
3.3 Otherwise use the chemical:	a. ☐ As a chemical processing aid	b. ☐ As a manufacturing aid	c. ☐ Ancillary or other use	

4. MAXIMUM AMOUNT OF THE CHEMICAL ON-SITE AT ANY TIME DURING THE CALENDAR YEAR

[07] (enter code)

5. RELEASES OF THE CHEMICAL TO THE ENVIRONMENT ON-SITE

		A. Total Releases (lbs/yr)			B. Basis of Estimate (enter code)	
		A.1 Reporting Ranges	A.2 Enter Estimate			
You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)		0 1-499 500-999				
5.1 Fugitive or non-point air emissions	5.1a	[] [] []	12000	5.1b	[O]	
5.2 Stack or point air emissions	5.2a	[] [] []	2900	5.2b	[O]	
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.1 [a] 5.3.2 [] 5.3.3 []	5.3.1a [] [] [] 5.3.2a [] [] [] 5.3.3a [] [] []	17 NA NA	5.3.1b [O] 5.3.2b [] 5.3.3b []		C. % From Stormwater 5.3.1c NA 5.3.2c 5.3.3c
5.4 Underground Injection	5.4a	[] [] []	NA	5.4b	[]	
5.5 Releases to land						
5.5.1 On-site landfill	5.5.1a	[] [] []	NA	5.5.1b	[]	
5.5.2 Land treatment/application farming	5.5.2a	[] [] []	NA	5.5.2b	[]	
5.5.3 Surface impoundment	5.5.3a	[] [] []	NA	5.5.3b	[]	
5.5.4 Other disposal	5.5.4a	[] [] []	NA	5.5.4b	[]	

[] (Check if additional information is provided on Part IV - Supplemental Information)

A FORM R PART III. CHEMICAL-SPECIFIC INFORMATION (continued)

Cyclohexane
Conoco Lake Charles Refi

6. TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS

You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)		A. Total Transfers (lbs/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)
		A.1 Reporting Ranges 0 1-499 500-999		A.2 Enter Estimate		
6.1.1	Discharge to POTW (enter location number from Part II, Section 1.)	1. []	[]	[]	NA	6.1.1b []
6.2.1	Other Off-Site Location (enter location number from Part II, Section 2.)	2. [2]	[]	[]	50	6.2.1b [O] 6.2.1c M72
6.2.2	Other Off-Site Location (enter location number from Part II, Section 2.)	2. [1]	[]	[]	62	6.2.2b [O] 6.2.2c M72
6.2.3	Other Off-Site Location (enter location number from Part II, Section 2.)	2. []	[]	[]	NA	6.2.3b [] 6.2.3c

[] (Check if additional information is provided on Part IV - Supplemental Information)

7. WASTE TREATMENT METHODS AND EFFICIENCY

[] Not Applicable (NA) - Check if no on-site treatment is applied to any wastestream containing the chemical or chemical category.

A. General wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data? Yes No
7.1a [W]	7.1b [B11]	7.1c [4]	7.1d []	7.1e 95.00 %	7.1f [] [X]
7.2a [A]	7.2b [A07]	7.2c [2]	7.2d []	7.2e 88.00 %	7.2f [X] []
7.3a []	7.3b [NA]	7.3c []	7.3d []	7.3e %	7.3f [] []
7.4a []	7.4b [NA]	7.4c []	7.4d []	7.4e %	7.4f [] []
7.5a []	7.5b [NA]	7.5c []	7.5d []	7.5e %	7.5f [] []
7.6a []	7.6b [NA]	7.6c []	7.6d []	7.6e %	7.6f [] []
7.7a []	7.7b [NA]	7.7c []	7.7d []	7.7e %	7.7f [] []
7.8a []	7.8b [NA]	7.8c []	7.8d []	7.8e %	7.8f [] []
7.9a []	7.9b [NA]	7.9c []	7.9d []	7.9e %	7.9f [] []
7.10a []	7.10b [NA]	7.10c []	7.10d []	7.10e %	7.10f [] []

[] (Check if additional information is provided on Part IV - Supplemental Information)

8. POLLUTION PREVENTION: OPTIONAL INFORMATION ON WASTE MINIMIZATION

(Indicate actions taken to reduce the amount of the chemical being released from the facility. See the instructions for coded items and an explanation of what information to include.)

A. Type of Modification (enter code)	B. Quantity of the Chemical in Wastes Prior to Treatment or Disposal			C. Index	D. Reason for Action (enter code)
	Current reporting year (lbs/yr)	Prior year (lbs/yr)	Or Percent Change		
M []			[]+ []- %	[]	R []

EPA FORM R PART IV. SUPPLEMENTAL INFORMATION

Use this section if you need additional space for answers to questions in Part III.
 Number the lines used sequentially from lines in prior sections (e.g., 5.3.4, 6.1.2, 7.11)

Cyclohexane
 Conoco Lake Charles Ref

ADDITIONAL INFORMATION ON RELEASES OF THE CHEMICAL TO THE ENVIRONMENT
 (Part III, Section 5.3)

	A. Total Releases (lbs/yr)			B. Basis of Estimate (enter code)	C. % From Stormwater
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)					
5.3 Discharges to receiving streams or water bodies	5.3.[] [] []	5.3.[]a [] [] []		5.3.[]b [] []	5.3.[]c
(Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.[] [] []	5.3.[]a [] [] []		5.3.[]b [] []	5.3.[]c

ADDITIONAL INFORMATION ON TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS
 (Part III, Section 6)

	A. Total Transfers (lbs/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)					
1.[] (enter location number from Part II, Section 1.)	1.[] [] []			6.1.[]b [] []	
6.2.[] (enter location number from Part II, Section 2.)	2.[] [] []			6.2.[]b [] []	6.2.[]c
6.2.[] (enter location number from Part II, Section 2.)	2.[] [] []			6.2.[]b [] []	6.2.[]c
6.2.[] (enter location number from Part II, Section 2.)	2.[] [] []			6.2.[]b [] []	6.2.[]c

ADDITIONAL INFORMATION ON WASTE TREATMENT METHODS AND EFFICIENCY (Part III, Section 7)

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data?	
					Yes	No
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]

EPA U.S. Environmental Protection Agency
TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM

Page 1 of 5

Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986,
as known as Title III of the Superfund Amendments and Reauthorization Act.

Ethylbenzene
Conoco Lake Charles Refi

EPA FORM R PART I. FACILITY IDENTIFICATION SECTION

1.1 Are you claiming the chemical identity on page 3 trade secret? ☐ Yes (Answer question 1.2; Attach substantiation forms.) ☒ No (Do not answer 1.2; Go to question 1.3.) 1.2 If "Yes" in 1.1, is this copy: ☐ Sanitized ☐ Unsanitized 1.3 Reporting Year 1989

2. CERTIFICATION (Read and sign after completing all sections.) I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official
Don R. Unruh Refinery Manager

Signature Date signed
06-20-90

3. Facility Identification

Facility or Establishment Name
Conoco Lake Charles Refinery

Street Address
Old Spanish Trail

City County
Westlake Calcasieu

State Zip Code
LA 70669

TRI Facility Identification Number
70669 CNCLK OLDSP

WHERE TO SEND COMPLETED FORMS:

1. EPCRA REPORTING CENTER
P.O. BOX 23799
WASHINGTON, DC 20026-3779
ATTN: TOXIC CHEMICAL RELEASE INVENTORY

2. APPROPRIATE STATE OFFICE (See instructions
in Appendix G)

3.2 This report contains information for (Check one): a. ☒ An entire facility b. ☐ Part of a facility.

3.3 Technical Contact Brandt Butler Telephone Number (318) 491-5599

3.4 Public Contact Don R. Unruh Telephone Number (318) 491-5222

3.5 SIC Code (4 digit) a. 2911 b. NA c. NA d. NA e. NA f. NA

3.6 Latitude Longitude
Degrees Minutes Seconds Degrees Minutes Seconds
030 14 36 093 16 20

3.7 Dun & Bradstreet Number(s) a. 00-842-7692 b. NA

3.8 EPA Identification Number(s) (RCRA I.D. No.) a. LAD990683716 b. NA

3.9 NPDES Permit Number(s) a. LA0003026 b. NA

3.10 Receiving Streams or Water Bodies (enter one name per box) a. Bayou Verdine b. NA

c. NA d. NA

e. NA f. NA

Underground Injection Well Code (UIC) Identification Number(s) a. NA b. NA

4. PARENT COMPANY INFORMATION

4.1 Name of Parent Company E. I. Du Pont De Nemours 4.2 Parent Company's Dun & Bradstreet Number 00-131-5704

EPA Form R Part II. OFF-SITE LOCATIONS TO WHICH TOXIC CHEMICALS ARE TRANSFERRED IN WASTES

Ethylbenzene
Conoco Lake Charles Ref

1. PUBLICLY OWNED TREATMENT WORKS (POTWs)

1.1 POTW name NA		1.2 POTW name NA	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip

2. OTHER OFF-SITE LOCATIONS (DO NOT REPORT LOCATIONS TO WHICH WASTES ARE SENT ONLY FOR RECYCLING OR REUSE).

2.1 Off-site location name BFI		2.2 Off-site location name CMMI	
EPA Identification Number (RCRA ID No.) NA		EPA Identification Number (RCRA ID No.) LAD000777201	
Street Address Cities Service Hwy @ I-10		Street Address Rt 2, John Brannon Rd	
City Sulfur	County Calcasieu	City Carlyss	County Calcasieu
State LA	Zip 70664	State LA	Zip 70663
Is location under control of reporting facility or parent company? [] Yes [X] No		Is location under control of reporting facility or parent company? [] Yes [X] No	
2.3 Off-site location name NA		2.4 Off-site location name NA	
EPA Identification Number (RCRA ID No.)		EPA Identification Number (RCRA ID No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? [] Yes [] No		Is location under control of reporting facility or parent company? [] Yes [] No	
2.5 Off-site location name NA		2.6 Off-site location name NA	
EPA Identification Number (RCRA ID No.)		EPA Identification Number (RCRA ID No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? [] Yes [] No		Is location under control of reporting facility or parent company? [] Yes [] No	
[] Check if additional pages of Part II are attached. How many? []		[]	

FORM R PART III. CHEMICAL-SPECIFIC INFORMATION

Ethylbenzene
Conoco Lake Charles Refi

1. CHEMICAL IDENTITY (Do not complete this section if you complete Section 2.)

1.1 [Reserved]

1.2 CAS Number (Enter the number exactly as it appears on the 313 list. Enter NA if reporting chemical category.)
000100-41-41.3 Chemical or Chemical Category Name (Enter the name exactly as it appears on the 313 list.)
Ethylbenzene

1.4 Generic Chemical Name (Complete only if Part I, Section 1.1 is checked "Yes." Generic name must be structurally descriptive.)

2. MIXTURE COMPONENT IDENTITY (Do not complete this section if you complete Section 1.)

Generic Chemical Name Provided by Supplier (Limit the name to a maximum of 70 characters (e.g., numbers, letters, spaces, punctuation).)

3. ACTIVITIES AND USES OF THE CHEMICAL AT THE FACILITY (Check all that apply.)

3.1 Manufacture the chemical: a. ☒ Produce If produce or import: c. ☒ For on-site use/processing d. ☐ For sale/distribution
b. ☐ Import e. ☐ As a byproduct f. ☒ As an impurity

3.2 Process the chemical: a. ☒ As a reactant b. ☒ As a formulation component c. ☐ As an article component
d. ☐ Repackaging only

Otherwise use the chemical: a. ☐ As a chemical processing aid b. ☐ As a manufacturing aid c. ☐ Ancillary or other use

4. MAXIMUM AMOUNT OF THE CHEMICAL ON-SITE AT ANY TIME DURING THE CALENDAR YEAR

[07] (enter code)

5. RELEASES OF THE CHEMICAL TO THE ENVIRONMENT ON-SITE

You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)

		A. Total Releases (lbs/yr)				B. Basis of Estimate (enter code)	
		A.1 Reporting Ranges			A.2 Enter Estimate		
		0	1-499	500-999			
5.1 Fugitive or non-point air emissions	5.1a	[]	[]	[]	7300	5.1b	[O]
5.2 Stack or point air emissions	5.2a	[]	[]	[]	640	5.2b	[O]
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.1 [A] 5.3.2 [] 5.3.3 []	5.3.1a [] 5.3.2a [] 5.3.3a []	[] [] []	[] [] []	17 NA NA	5.3.1b [O] 5.3.2b [] 5.3.3b []	C. % From Stormwater 5.3.1c NA 5.3.2c 5.3.3c
5.4 Underground Injection	5.4a	[]	[]	[]	NA	5.4b	[]
5.5 Releases to land							
5.5.1 On-site landfill	5.5.1a	[]	[]	[]	NA	5.5.1b	[]
5.5.2 Land treatment/application farming	5.5.2a	[]	[]	[]	NA	5.5.2b	[]
5.5.3 Surface impoundment	5.5.3a	[]	[]	[]	NA	5.5.3b	[]
5.5.4 Other disposal	5.5.4a	[]	[]	[]	NA	5.5.4b	[]

(Check if additional information is provided on Part IV - Supplemental Information)

FORM R PART III. CHEMICAL-SPECIFIC INFORMATION (continued)

Ethylbenzene
Conoco Lake Charles Ref.

6. TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS

You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)		A. Total Transfers (lbs/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)
		A.1 Reporting Ranges 0 1-499 500-999		A.2 Enter Estimate		
6.1.1	Discharge to POTW (enter location number from Part II, Section 1.) 1. []	[]	[]	[]	NA	6.1.1b []
6.2.1	Other Off-Site Location (enter location number from Part II, Section 2.) 2. [2]	[]	[]	[]	96	6.2.1b [O] 6.2.1c M72
6.2.2	Other Off-Site Location (enter location number from Part II, Section 2.) 2. [1]	[]	[]	[]	110	6.2.2b [O] 6.2.2c M72
6.2.3	Other Off-Site Location (enter location number from Part II, Section 2.) 2. []	[]	[]	[]	NA	6.2.3b [] 6.2.3c

[] (Check if additional information is provided on Part IV - Supplemental Information)

7. WASTE TREATMENT METHODS AND EFFICIENCY

[] Not Applicable (NA) - Check if no on-site treatment is applied to any wastestream containing the chemical or chemical category.

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data? Yes No
7.1a [W]	7.1b [B11]	7.1c [4]	7.1d []	7.1e 95.00 %	7.1f [] [X]
7.2a [A]	7.2b [A07]	7.2c [2]	7.2d []	7.2e 88.00 %	7.2f [X] []
7.3a []	7.3b [NA]	7.3c []	7.3d []	7.3e %	7.3f [] []
7.4a []	7.4b [NA]	7.4c []	7.4d []	7.4e %	7.4f [] []
7.5a []	7.5b [NA]	7.5c []	7.5d []	7.5e %	7.5f [] []
7.6a []	7.6b [NA]	7.6c []	7.6d []	7.6e %	7.6f [] []
7.7a []	7.7b [NA]	7.7c []	7.7d []	7.7e %	7.7f [] []
7.8a []	7.8b [NA]	7.8c []	7.8d []	7.8e %	7.8f [] []
7.9a []	7.9b [NA]	7.9c []	7.9d []	7.9e %	7.9f [] []
7.10a []	7.10b [NA]	7.10 []	7.10d []	7.10e %	7.10f [] []

[] (Check if additional information is provided on Part IV - Supplemental Information)

8. POLLUTION PREVENTION: OPTIONAL INFORMATION ON WASTE MINIMIZATION

(Indicate actions taken to reduce the amount of the chemical being released from the facility. See the instructions for coded items and an explanation of what information to include.)

A. Type of Modification (enter code)	B. Quantity of the Chemical in Wastes Prior to Treatment or Disposal			C. Index	D. Reason for Action (enter code)
	Current reporting year (lbs/yr)	Prior year (lbs/yr)	Or Percent Change		
M []			[]+ []-	% []	R []

A FORM R PART IV. SUPPLEMENTAL INFORMATION

Use this section if you need additional space for answers to questions in Part III.
 over the lines used sequentially from lines in prior sections (e.g., 5.3.4, 6.1.2, 7.11)

Ethylbenzene
 Conoco Lake Charles Refi

ADDITIONAL INFORMATION ON RELEASES OF THE CHEMICAL TO THE ENVIRONMENT
 (Part III, Section 5.3)

You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Releases (lbs/yr)			B. Basis of Estimate (enter code)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate		
5.3 Discharges to receiving streams or water bodies 5.3.[] [] [] (Enter letter code from 5.3.[] [] [] Part I Section 3.10 for 5.3.[] [] [] stream(s) in the box provided.)	5.3.[] a [] [] [] 5.3.[] a [] [] []			5.3.[] b [] [] 5.3.[] b [] [] 5.3.[] b [] []
				C. % From Stormwater 5.3.[] c 5.3.[] c 5.3.[] c

ADDITIONAL INFORMATION ON TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS
 (Part III, Section 6)

You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Transfers (lbs/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
Discharge to POTW [] (enter location number from Part II, Section 1.) 1.[] []	[] [] []			6.1.[] b [] []	
Other off-site location 6.2.[] (enter location number from Part II, Section 2.) 2.[] []	[] [] []			6.2.[] b [] []	6.2.[] c
Other off-site location 6.2.[] (enter location number from Part II, Section 2.) 2.[] []	[] [] []			6.2.[] b [] []	6.2.[] c
Other off-site location 6.2.[] (enter location number from Part II, Section 2.) 2.[] []	[] [] []			6.2.[] b [] []	6.2.[] c

ADDITIONAL INFORMATION ON WASTE TREATMENT METHODS AND EFFICIENCY (Part III, Section 7)

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data?	
					Yes	No
7.[] a [] []	7.[] b [] []	7.[] c [] []	7.[] d [] []	7.[] e	% 7.[] f [] []	[]
7.[] a [] []	7.[] b [] []	7.[] c [] []	7.[] d [] []	7.[] e	% 7.[] f [] []	[]
7.[] a [] []	7.[] b [] []	7.[] c [] []	7.[] d [] []	7.[] e	% 7.[] f [] []	[]
7.[] a [] []	7.[] b [] []	7.[] c [] []	7.[] d [] []	7.[] e	% 7.[] f [] []	[]
7.[] a [] []	7.[] b [] []	7.[] c [] []	7.[] d [] []	7.[] e	% 7.[] f [] []	[]
7.[] a [] []	7.[] b [] []	7.[] c [] []	7.[] d [] []	7.[] e	% 7.[] f [] []	[]
7.[] a [] []	7.[] b [] []	7.[] c [] []	7.[] d [] []	7.[] e	% 7.[] f [] []	[]
7.[] a [] []	7.[] b [] []	7.[] c [] []	7.[] d [] []	7.[] e	% 7.[] f [] []	[]

Ethylene
Conoco Lake Charles Ref.

EPA FORM R PART I. FACILITY IDENTIFICATION SECTION

1.1 Are you claiming the chemical identity on page 3 trade secret? ☐ Yes (Answer question 1.2; Attach substantiation forms.) ☒ No (Do not answer 1.2; Go to question 1.3.) 1.2 If "Yes" in 1.1, is this copy: ☐ Sanitized ☐ Unsanitized 1.3 Reporting Year 1989

2. CERTIFICATION (Read and sign after completing all sections.) I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official
Don R. Unruh Refinery Manager

Signature Date signed
06-20-90

3. Facility Identification

WHERE TO SEND COMPLETED FORMS:

1. EPCRA REPORTING CENTER
P.O. BOX 23799
WASHINGTON, DC 20026-3779
ATTN: TOXIC CHEMICAL RELEASE INVENTORY

2. APPROPRIATE STATE OFFICE (See instructions in Appendix G)

3.1 Facility or Establishment Name
Conoco Lake Charles Refinery
Street Address
Old Spanish Trail
City
Westlake County
Calcasieu
State
LA Zip Code
70669
TRI Facility Identification Number
70669 CNCLK OLDSP

3.2 This report contains information for (Check one): a. ☒ An entire facility b. ☐ Part of a facility.

3.3 Technical Contact
Brandt Butler Telephone Number
(318) 491-5599

3.4 Public Contact
Don R. Unruh Telephone Number
(318) 491-5222

3.5 SIC Code (4 digit)
a. 2911 b. NA c. NA d. NA e. NA f. NA

3.6 Latitude Longitude
Degrees Minutes Seconds Degrees Minutes Seconds
030 14 36 093 16 20

3.7 Dun & Bradstreet Number(s)
a. 00-842-7692 b. NA

3.8 EPA Identification Number(s) (RCRA I.D. No.)
a. IAD990683716 b. NA

3.9 NPDES Permit Number(s)
a. LA0003026 b. NA

3.10 Receiving Streams or Water Bodies (enter one name per box)
a. Bayou Verdine b. NA
c. NA d. NA
e. NA f. NA

3.11 Underground Injection Well Code (UIC) Identification Number(s)
a. NA b. NA

4. PARENT COMPANY INFORMATION

4.1 Name of Parent Company
E. I. Du Pont De Nemours 4.2 Parent Company's Dun & Bradstreet Number
00-131-5704

A Form R Part II. OFF-SITE LOCATIONS TO WHICH TOXIC CHEMICALS ARE TRANSFERRED IN WASTES

Ethylene
Conoco Lake Charles Refi

1. PUBLICLY OWNED TREATMENT WORKS (POTWs)

1.1 POTW name
NA1.2 POTW name
NA

Street Address

Street Address

City

County

City

County

State

Zip

State

Zip

2. OTHER OFF-SITE LOCATIONS (DO NOT REPORT LOCATIONS TO WHICH WASTES ARE SENT ONLY FOR RECYCLING OR REUSE).

2.1 Off-site location name
BFI2.2 Off-site location name
CWMIEPA Identification Number (RCRA ID No.)
NAEPA Identification Number (RCRA ID No.)
IAD000777201

Street Address

Cities Service Hwy @ I-10

Street Address

Rt 2, John Brannon Rd

City

Sulfur

County

Calcasieu

City

Carlyss

County

Calcasieu

State

LA

Zip

70664

State

LA

Zip

70663

Is location under control of reporting facility or parent company?
☐ Yes ☒ NoIs location under control of reporting facility or parent company?
☐ Yes ☒ No2.3 Off-site location name
NA2.4 Off-site location name
NA

EPA Identification Number (RCRA ID No.)

EPA Identification Number (RCRA ID No.)

Street Address

Street Address

City

County

City

County

State

Zip

State

Zip

Is location under control of reporting facility or parent company?
☐ Yes ☐ NoIs location under control of reporting facility or parent company?
☐ Yes ☐ No2.5 Off-site location name
NA2.6 Off-site location name
NA

EPA Identification Number (RCRA ID No.)

EPA Identification Number (RCRA ID No.)

Street Address

Street Address

City

County

City

County

State

Zip

State

Zip

Is location under control of reporting facility or parent company?
☐ Yes ☐ NoIs location under control of reporting facility or parent company?
☐ Yes ☐ No☐ Check if additional pages of Part II are attached. How many? ☐

PA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION

Ethylene
Conoco Lake Charles Refi

1. CHEMICAL IDENTITY (Do not complete this section if you complete Section 2.)

1.1 [Reserved]

1.2 CAS Number (Enter the number exactly as it appears on the 313 list. Enter NA if reporting chemical category.)
000074-85-11.3 Chemical or Chemical Category Name (Enter the name exactly as it appears on the 313 list.)
Ethylene

1.4 Generic Chemical Name (Complete only if Part I, Section 1.1 is checked "Yes." Generic name must be structurally descriptive.)

2. MIXTURE COMPONENT IDENTITY (Do not complete this section if you complete Section 1.)

Generic Chemical Name Provided by Supplier (Limit the name to a maximum of 70 characters (e.g., numbers, letters, spaces, punctuation).)

3. ACTIVITIES AND USES OF THE CHEMICAL AT THE FACILITY (Check all that apply.)

- 3.1 Manufacture the chemical: a. ☒ Produce If produce or import: c. ☒ For on-site use/processing d. ☐ For sale/distribution
b. ☐ Import e. ☐ As a byproduct f. ☒ As an impurity
- 3.2 Process the chemical: a. ☒ As a reactant b. ☐ As a formulation component c. ☐ As an article component
d. ☐ Repackaging only
- 3.3 Otherwise use the chemical: a. ☐ As a chemical processing aid b. ☐ As a manufacturing aid c. ☒ Ancillary or other use

4. MAXIMUM AMOUNT OF THE CHEMICAL ON-SITE AT ANY TIME DURING THE CALENDAR YEAR

[06] (enter code)

5. RELEASES OF THE CHEMICAL TO THE ENVIRONMENT ON-SITE

		A. Total Releases (lbs/yr)			B. Basis of Estimate (enter code)	
		A.1 Reporting Ranges		A.2 Enter Estimate		
		0	1-499	500-999		
You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)						
5.1 Fugitive or non-point air emissions	5.1a	[]	[]	[]	14000 5.1b [O]	
5.2 Stack or point air emissions	5.2a	[]	[]	[]	NA 5.2b []	
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.1 []	5.3.1a	[]	[]	NA 5.3.1b []	C. % From Stormwater 5.3.1c 5.3.2c 5.3.3c
	5.3.2 []	5.3.2a	[]	[]	NA 5.3.2b []	
	5.3.3 []	5.3.3a	[]	[]	NA 5.3.3b []	
5.4 Underground Injection	5.4a	[]	[]	[]	NA 5.4b []	
5.5 Releases to land						
5.5.1 On-site landfill	5.5.1a	[]	[]	[]	NA 5.5.1b []	
5.5.2 Land treatment/application farming	5.5.2a	[]	[]	[]	NA 5.5.2b []	
5.5.3 Surface impoundment	5.5.3a	[]	[]	[]	NA 5.5.3b []	
5.5.4 Other disposal	5.5.4a	[]	[]	[]	NA 5.5.4b []	

[] (Check if additional information is provided on Part IV - Supplemental Information)

SAL 000004333

A FORM R PART III. CHEMICAL-SPECIFIC INFORMATION (continued)

Ethylene
Conoco Lake Charles Refi

6. TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS

You may report transfers of less than
1,000 lbs by checking ranges under A.1.
(Do not use both A.1 and A.2)

		A. Total Transfers (lbs/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)
		A.1 Reporting Ranges 0 1-499 500-999		A.2 Enter Estimate		
6.1.1	Discharge to POTW (enter location number from Part II, Section 1.)	1. []	[] [] []	NA	6.1.1b []	
6.2.1	Other Off-Site Location (enter location number from Part II, Section 2.)	2. []	[] [] []	NA	6.2.1b []	6.2.1c
6.2.2	Other Off-Site Location (enter location number from Part II, Section 2.)	2. []	[] [] []	NA	6.2.2b []	6.2.2c
6.2.3	Other Off-Site Location (enter location number from Part II, Section 2.)	2. []	[] [] []	NA	6.2.3b []	6.2.3c

[] (Check if additional information is provided on Part IV - Supplemental Information)

7. WASTE TREATMENT METHODS AND EFFICIENCY

[X] Not Applicable (NA) - Check if no on-site treatment is applied to any wastestream containing the chemical or chemical category.

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data? Yes No
7.1a []	7.1b []	7.1c []	7.1d []	7.1e %	7.1f [] []
7.2a []	7.2b []	7.2c []	7.2d []	7.2e %	7.2f [] []
7.3a []	7.3b []	7.3c []	7.3d []	7.3e %	7.3f [] []
7.4a []	7.4b []	7.4c []	7.4d []	7.4e %	7.4f [] []
7.5a []	7.5b []	7.5c []	7.5d []	7.5e %	7.5f [] []
7.6a []	7.6b []	7.6c []	7.6d []	7.6e %	7.6f [] []
7.7a []	7.7b []	7.7c []	7.7d []	7.7e %	7.7f [] []
7.8a []	7.8b []	7.8c []	7.8d []	7.8e %	7.8f [] []
7.9a []	7.9b []	7.9c []	7.9d []	7.9e %	7.9f [] []
7.10a []	7.10b []	7.10 []	7.10d []	7.10e %	7.10f [] []

[] (Check if additional information is provided on Part IV - Supplemental Information)

8. POLLUTION PREVENTION: OPTIONAL INFORMATION ON WASTE MINIMIZATION

(Indicate actions taken to reduce the amount of the chemical being released from the facility. See the instructions for coded items and an explanation of what information to include.)

A. Type of Modification (enter code)	B. Quantity of the Chemical in Wastes Prior to Treatment or Disposal			C. Index	D. Reason for Action (enter code)
	Current reporting year (lbs/yr)	Prior year (lbs/yr)	Or Percent Change		
M []			[]+ []-	X []	R []

EPA FORM R PART IV. SUPPLEMENTAL INFORMATION

Use this section if you need additional space for answers to questions in Part III.
Number the lines used sequentially from lines in prior sections (e.g., 5.3.4, 6.1.2, 7.11)

Ethylene
Conoco Lake Charles Ref

ADDITIONAL INFORMATION ON RELEASES OF THE CHEMICAL TO THE ENVIRONMENT
(Part III, Section 5.3)

You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Releases (lbs/yr)			B. Basis of Estimate (enter code)	
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.[] [] []	5.3.[]a [] [] []		5.3.[]b [] []	C. % From Stormwater 5.3.[]c [] [] []
	5.3.[] [] []	5.3.[]a [] [] []		5.3.[]b [] []	5.3.[]c [] [] []
	5.3.[] [] []	5.3.[]a [] [] []		5.3.[]b [] []	5.3.[]c [] [] []

ADDITIONAL INFORMATION ON TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS
(Part III, Section 6)

You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Transfers (lbs/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/Disposal (enter code)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
Discharge to POTW 1.[] (enter location number from Part II, Section 1.)	1.[] [] []			6.1.[]b [] []	
Other off-site location 6.2.[] (enter location number from Part II, Section 2.)	2.[] [] []			6.2.[]b [] []	6.2.[]c [] [] []
Other off-site location 6.2.[] (enter location number from Part II, Section 2.)	2.[] [] []			6.2.[]b [] []	6.2.[]c [] [] []
Other off-site location 6.2.[] (enter location number from Part II, Section 2.)	2.[] [] []			6.2.[]b [] []	6.2.[]c [] [] []

ADDITIONAL INFORMATION ON WASTE TREATMENT METHODS AND EFFICIENCY (Part III, Section 7)

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data?	
					Yes	No
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e [] []	% 7.[]f [] []	[] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e [] []	% 7.[]f [] []	[] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e [] []	% 7.[]f [] []	[] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e [] []	% 7.[]f [] []	[] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e [] []	% 7.[]f [] []	[] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e [] []	% 7.[]f [] []	[] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e [] []	% 7.[]f [] []	[] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e [] []	% 7.[]f [] []	[] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e [] []	% 7.[]f [] []	[] []

Hydrochloric acid
Conoco Lake Charles Refi

PART I. FACILITY IDENTIFICATION SECTION

1.1 Is the chemical identity on page 3 trade secret? 1.2 If "Yes" in 1.1, is this copy: 1.3 Reporting Year
Answer question 1.2; [X] No (Do not answer 1.2; [] Sanitized [] Unsanitized 1989
(substantiation forms.) Go to question 1.3.)

I (Read and sign after completing all sections.) I hereby certify that I have reviewed the attached documents and
to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in
are accurate based on reasonable estimates using data available to the preparers of this report.

Name and title of owner/operator or senior management official
J. Unruh Refinery Manager

Date signed
06-20-90

Facility Identification

Name of Facility or Establishment Name
Conoco Lake Charles Refinery

Address
Spanish Trail

County
Calcasieu

Zip Code
70669

WHERE TO SEND COMPLETED FORMS:

1. EPCRA REPORTING CENTER
P.O. BOX 23799
WASHINGTON, DC 20026-3779
ATTN: TOXIC CHEMICAL RELEASE INVENTORY

2. APPROPRIATE STATE OFFICE (See instructions
in Appendix G)

Facility Identification Number
99 CLK OLDSP

Does this report contain information for (Check one): a. [X] An entire facility b. [] Part of a facility.

Facility Contact
J. Butler

Telephone Number
(318) 491-5599

Facility Contact
J. R. Unruh

Telephone Number
(318) 491-5222

Code (4 digit)
2911

b. NA

c. NA

d. NA

e. NA

f. NA

Latitude

Longitude

Degrees
030

Minutes
14

Seconds
36

Degrees
093

Minutes
16

Seconds
20

Dun & Bradstreet Number(s)
00-842-7692

b. NA

PA Identification Number(s) (RCRA I.D. No.)
LAD990683716

b. NA

IPDES Permit Number(s)
a. LA0003026

b. NA

Receiving Streams or Water Bodies (enter one name per box)
a. Bayou Verdine

b. NA

c. NA

d. NA

e. NA

f. NA

Underground Injection Well Code (UIC) Identification Number(s)
a. NA

b. NA

PARENT COMPANY INFORMATION

Name of Parent Company
E. I. Du Pont De Nemours

4.2 Parent Company's Dun & Bradstreet Number
00-131-5704

cid
arles Refi

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EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION (continued)

Hydrochloric acid
Conoco Lake Charles Refi

5. TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS

	A. Total Transfers (lbs/yr)	B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)
You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)			
6.1.1 Discharge to POTW (enter location number from Part II, Section 1.) 1. []	[] [] []	NA	6.1.1b []
6.2.1 Other Off-Site Location (enter location number from Part II, Section 2.) 2. []	[] [] []	NA	6.2.1b [] 6.2.1c
6.2.2 Other Off-Site Location (enter location number from Part II, Section 2.) 2. []	[] [] []	NA	6.2.2b [] 6.2.2c
6.2.3 Other Off-Site Location (enter location number from Part II, Section 2.) 2. []	[] [] []	NA	6.2.3b [] 6.2.3c

[] (Check if additional information is provided on Part IV - Supplemental Information)

7. WASTE TREATMENT METHODS AND EFFICIENCY

[] Not Applicable (NA) - Check if no on-site treatment is applied to any wastestream containing the chemical or chemical category.

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data? Yes No
7.1a [W]	7.1b [C11]	7.1c [1]	7.1d []	7.1e 100.00 %	7.1f [X] []
7.2a []	7.2b [NA]	7.2c []	7.2d []	7.2e %	7.2f [] []
7.3a []	7.3b [NA]	7.3c []	7.3d []	7.3e %	7.3f [] []
7.4a []	7.4b [NA]	7.4c []	7.4d []	7.4e %	7.4f [] []
7.5a []	7.5b [NA]	7.5c []	7.5d []	7.5e %	7.5f [] []
7.6a []	7.6b [NA]	7.6c []	7.6d []	7.6e %	7.6f [] []
7.7a []	7.7b [NA]	7.7c []	7.7d []	7.7e %	7.7f [] []
7.8a []	7.8b [NA]	7.8c []	7.8d []	7.8e %	7.8f [] []
7.9a []	7.9b [NA]	7.9c []	7.9d []	7.9e %	7.9f [] []
7.10a []	7.10b [NA]	7.10 []	7.10d []	7.10e %	7.10f [] []

[] (Check if additional information is provided on Part IV - Supplemental Information)

8. POLLUTION PREVENTION: OPTIONAL INFORMATION ON WASTE MINIMIZATION

(Indicate actions taken to reduce the amount of the chemical being released from the facility. See the instructions for coded items and an explanation of what information to include.)

A. Type of Modification (enter code)	B. Quantity of the Chemical in wastes Prior to Treatment or Disposal	C. Index	D. Reason for Action (enter code)
	Current reporting year (lbs/yr)	Prior year (lbs/yr)	Or Percent Change
M []			[]+ []- % [] R []

EPA FORM R PART IV. SUPPLEMENTAL INFORMATION

Use this section if you need additional space for answers to questions in Part III.
 Enter the lines used sequentially from lines in prior sections (e.g., 5.3.4, 6.1.2, 7.11)

Hydrochloric acid
 Conoco Lake Charles Refi

ADDITIONAL INFORMATION ON RELEASES OF THE CHEMICAL TO THE ENVIRONMENT
 (Part III, Section 5.3)

You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Releases (lbs/yr)			B. Basis of Estimate (enter code)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate		
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.[] [] []	5.3.[]a [] [] []	5.3.[]b [] [] []	C. % From Stormwater 5.3.[]c [] [] []

ADDITIONAL INFORMATION ON TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS
 (Part III, Section 6)

You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Transfers (lbs/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
1.[] (enter location number from Part II, Section 1.)	1.[] [] []	6.1.[]b [] []			
6.2.[] Other off-site location (enter location number from Part II, Section 2.)	2.[] [] []	6.2.[]b [] []	6.2.[]c [] []		
6.2.[] Other off-site location (enter location number from Part II, Section 2.)	2.[] [] []	6.2.[]b [] []	6.2.[]c [] []		
6.2.[] Other off-site location (enter location number from Part II, Section 2.)	2.[] [] []	6.2.[]b [] []	6.2.[]c [] []		

ADDITIONAL INFORMATION ON WASTE TREATMENT METHODS AND EFFICIENCY (Part III, Section 7)

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data?	
					Yes	No
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]

Lead Compounds
Conoco Lake Charles Ref:

EPA FORM R PART 1. FACILITY IDENTIFICATION SECTION

1.1 Are you claiming the chemical identity on page 3 trade secret? ☐ Yes (Answer question 1.2; Attach substantiation forms.) ☒ No (Do not answer 1.2; Go to question 1.3.) 1.2 If "Yes" in 1.1, is this copy: ☐ Sanitized ☐ Unsanitized 1.3 Reporting Year 1989

2. CERTIFICATION (Read and sign after completing all sections.) I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official
Don R. Unruh Refinery Manager

Signature Date signed
06-20-90

3. Facility Identification

Facility or Establishment Name
Conoco Lake Charles Refinery
Street Address
Old Spanish Trail
City
Westlake County
Calcasieu
State
LA Zip Code
70669
TRI Facility Identification Number
70669 CNCLK OLDSP

WHERE TO SEND COMPLETED FORMS:

1. EPCRA REPORTING CENTER
P.O. BOX 23799
WASHINGTON, DC 20026-3779
ATTN: TOXIC CHEMICAL RELEASE INVENTORY
2. APPROPRIATE STATE OFFICE (See instructions in Appendix G)

3.2 This report contains information for (Check one): a. ☒ An entire facility b. ☐ Part of a facility.

3.3 Technical Contact Brandt Butler Telephone Number (318) 491-5599

3.4 Public Contact Don R. Unruh Telephone Number (318) 491-5222

3.5 SIC Code (4 digit) a. 2911 b. NA c. NA d. NA e. NA f. NA

3.6 Latitude Longitude
Degrees Minutes Seconds Degrees Minutes Seconds
030 14 36 093 16 20

3.7 Dun & Bradstreet Number(s) a. 00-842-7692 b. NA

3.8 EPA Identification Number(s) (RCRA I.D. No.) a. LAD990683716 b. NA

3.9 NPDES Permit Number(s) a. LA0003026 b. NA

3.10 Receiving Streams or Water Bodies (enter one name per box) a. Bayou Verdine b. NA
c. NA d. NA
e. NA f. NA

3.11 Underground Injection Well Code (UIC) Identification Number(s) a. NA b. NA

4. PARENT COMPANY INFORMATION

4.1 Name of Parent Company E. I. Du Pont De Nemours 4.2 Parent Company's Dun & Bradstreet Number 00-131-5704

PA Form R Part II. OFF-SITE LOCATIONS TO WHICH TOXIC CHEMICALS ARE TRANSFERRED IN WASTES

Lead Compounds
Conoco Lake Charles Refi

1. PUBLICLY OWNED TREATMENT WORKS (POTWs)

1.1 POTW name NA		1.2 POTW name NA	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip

2. OTHER OFF-SITE LOCATIONS (DO NOT REPORT LOCATIONS TO WHICH WASTES ARE SENT ONLY FOR RECYCLING OR REUSE).

2.1 Off-site location name BFI		2.2 Off-site location name CMI	
EPA Identification Number (RCRA ID No.) NA		EPA Identification Number (RCRA ID No.) LAD000777201	
Street Address Cities Service Hwy @ I-10		Street Address Rt 2, John Brannon Rd	
City Sulfur	County Calcasieu	City Carlyss	County Calcasieu
State LA	Zip 70664	State LA	Zip 70663
Is location under control of reporting facility or parent company? [] Yes [X] No		Is location under control of reporting facility or parent company? [] Yes [X] No	

2.3 Off-site location name NA		2.4 Off-site location name NA	
EPA Identification Number (RCRA ID No.)		EPA Identification Number (RCRA ID No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? [] Yes [] No		Is location under control of reporting facility or parent company? [] Yes [] No	

2.5 Off-site location name NA		2.6 Off-site location name NA	
EPA Identification Number (RCRA ID No.)		EPA Identification Number (RCRA ID No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? [] Yes [] No		Is location under control of reporting facility or parent company? [] Yes [] No	

[] Check if additional pages of Part II are attached. How many? []

EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION

Lead Compounds
Conoco Lake Charles Ref.

1. CHEMICAL IDENTITY (Do not complete this section if you complete Section 2.)

1.1 [Reserved]

1.2 CAS Number (Enter the number exactly as it appears on the 313 list. Enter NA if reporting chemical category.)
NA1.3 Chemical or Chemical Category Name (Enter the name exactly as it appears on the 313 list.)
Lead Compounds

1.4 Generic Chemical Name (Complete only if Part I, Section 1.1 is checked "Yes." Generic name must be structurally descriptive.)

2. MIXTURE COMPONENT IDENTITY (Do not complete this section if you complete Section 1.)

Generic Chemical Name Provided by Supplier (Limit the name to a maximum of 70 characters (e.g., numbers, letters, spaces, punctuation).)

3. ACTIVITIES AND USES OF THE CHEMICAL AT THE FACILITY (Check all that apply.)

3.1 Manufacture the chemical: a. [] Produce If produce or import: c. [] For on-site use/processing d. [] For sale/distribution
b. [] Import e. [] As a byproduct f. [] As an impurity3.2 Process the chemical: a. [] As a reactant b. [X] As a formulation component c. [] As an article component
d. [] Repackaging only

3.3 Otherwise use the chemical: a. [] As a chemical processing aid b. [] As a manufacturing aid c. [] Ancillary or other use

4. MAXIMUM AMOUNT OF THE CHEMICAL ON-SITE AT ANY TIME DURING THE CALENDAR YEAR

[05] (enter code)

5. RELEASES OF THE CHEMICAL TO THE ENVIRONMENT ON-SITE

		A. Total Releases (lbs/yr)				B. Basis of Estimate (enter code)	C. % From Stormwater
		A.1 Reporting Ranges		A.2 Enter Estimate			
		0	1-499	500-999			
You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)							
5.1 Fugitive or non-point air emissions	5.1a	[]	[]	[]	400	5.1b [O]	
5.2 Stack or point air emissions	5.2a	[]	[]	[]	0	5.2b [O]	
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.1 [2] 5.3.2 [] 5.3.3 []	5.3.1a [] 5.3.2a [] 5.3.3a []	[] [] []	[] [] []	0 NA NA	5.3.1b [O] 5.3.2b [] 5.3.3b []	5.3.1c NA 5.3.2c 5.3.3c
5.4 Underground Injection	5.4a	[]	[]	[]	NA	5.4b []	
5.5 Releases to land							
5.5.1 On-site landfill	5.5.1a	[]	[]	[]	NA	5.5.1b []	
5.5.2 Land treatment/application farming	5.5.2a	[]	[]	[]	NA	5.5.2b []	
5.5.3 Surface impoundment	5.5.3a	[]	[]	[]	NA	5.5.3b []	
5.5.4 Other disposal	5.5.4a	[]	[]	[]	NA	5.5.4b []	

[] (Check if additional information is provided on Part IV - Supplemental Information)

EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION (continued)

Lead Compounds
Conoco Lake Charles Refi

6. TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS

		A. Total Transfers (lbs/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)
		A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)						
6.1.1	Discharge to POTW (enter location number from Part II, Section 1.)	1. []	[]	[]	NA	6.1.1b []
6.2.1	Other Off-Site Location (enter location number from Part II, Section 2.)	2. []	[]	[]	NA	6.2.1b [] 6.2.1c
6.2.2	Other Off-Site Location (enter location number from Part II, Section 2.)	2. []	[]	[]	NA	6.2.2b [] 6.2.2c
6.2.3	Other Off-Site Location (enter location number from Part II, Section 2.)	2. []	[]	[]	NA	6.2.3b [] 6.2.3c

[] (Check if additional information is provided on Part IV - Supplemental Information)

7. WASTE TREATMENT METHODS AND EFFICIENCY

[X] Not Applicable (NA) - Check if no on-site treatment is applied to any wastestream containing the chemical or chemical category.

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data?	
					Yes	No
7.1a []	7.1b []	7.1c []	7.1d []	7.1e %	7.1f []	[]
7.2a []	7.2b []	7.2c []	7.2d []	7.2e %	7.2f []	[]
7.3a []	7.3b []	7.3c []	7.3d []	7.3e %	7.3f []	[]
7.4a []	7.4b []	7.4c []	7.4d []	7.4e %	7.4f []	[]
7.5a []	7.5b []	7.5c []	7.5d []	7.5e %	7.5f []	[]
7.6a []	7.6b []	7.6c []	7.6d []	7.6e %	7.6f []	[]
7.7a []	7.7b []	7.7c []	7.7d []	7.7e %	7.7f []	[]
7.8a []	7.8b []	7.8c []	7.8d []	7.8e %	7.8f []	[]
7.9a []	7.9b []	7.9c []	7.9d []	7.9e %	7.9f []	[]
7.10a []	7.10b []	7.10 []	7.10d []	7.10e %	7.10f []	[]

[] (Check if additional information is provided on Part IV - Supplemental Information)

8. POLLUTION PREVENTION: OPTIONAL INFORMATION ON WASTE MINIMIZATION

(Indicate actions taken to reduce the amount of the chemical being released from the facility. See the instructions for coded items and an explanation of what information to include.)

A. Type of Modification (enter code)	B. Quantity of the Chemical in Wastes Prior to Treatment or Disposal			C. Index	D. Reason for Action (enter code)
	Current reporting year (lbs/yr)	Prior year (lbs/yr)	Or Percent Change		
M []			[]+ []-	% []	R []

EPA FORM R PART IV. SUPPLEMENTAL INFORMATION

Use this section if you need additional space for answers to questions in Part III.
Number the lines used sequentially from lines in prior sections (e.g., 5.3.4, 6.1.2, 7.11)

Lead Compounds
Conoco Lake Charles Ref

ADDITIONAL INFORMATION ON RELEASES OF THE CHEMICAL TO THE ENVIRONMENT

(Part III, Section 5.3)

You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Releases (lbs/yr)		B. Basis of Estimate (enter code)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate	
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.[] [] []	[] [] []	5.3.[] b [] []
	5.3.[] [] []	[] [] []	5.3.[] b [] []
	5.3.[] [] []	[] [] []	5.3.[] b [] []

ADDITIONAL INFORMATION ON TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS

(Part III, Section 6)

You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Transfers (lbs/yr)		B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate		
Discharge to POTW (Enter location number from Part II, Section 1.)	1.[] [] []	[] [] []	6.1.[] b [] []	
Other off-site location (Enter location number from Part II, Section 2.)	2.[] [] []	[] [] []	6.2.[] b [] []	6.2.[] c
Other off-site location (Enter location number from Part II, Section 2.)	2.[] [] []	[] [] []	6.2.[] b [] []	6.2.[] c
Other off-site location (Enter location number from Part II, Section 2.)	2.[] [] []	[] [] []	6.2.[] b [] []	6.2.[] c

ADDITIONAL INFORMATION ON WASTE TREATMENT METHODS AND EFFICIENCY (Part III, Section 7)

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data?	
					Yes	No
7.[] a [] []	7.[] b [] []	7.[] c [] []	7.[] d [] []	7.[] e %	7.[] f [] []	[]
7.[] a [] []	7.[] b [] []	7.[] c [] []	7.[] d [] []	7.[] e %	7.[] f [] []	[]
7.[] a [] []	7.[] b [] []	7.[] c [] []	7.[] d [] []	7.[] e %	7.[] f [] []	[]
7.[] a [] []	7.[] b [] []	7.[] c [] []	7.[] d [] []	7.[] e %	7.[] f [] []	[]
7.[] a [] []	7.[] b [] []	7.[] c [] []	7.[] d [] []	7.[] e %	7.[] f [] []	[]
7.[] a [] []	7.[] b [] []	7.[] c [] []	7.[] d [] []	7.[] e %	7.[] f [] []	[]
7.[] a [] []	7.[] b [] []	7.[] c [] []	7.[] d [] []	7.[] e %	7.[] f [] []	[]
7.[] a [] []	7.[] b [] []	7.[] c [] []	7.[] d [] []	7.[] e %	7.[] f [] []	[]

EPA U.S. Environmental Protection Agency
TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM

Page 1 of 5

Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986,
also known as Title III of the Superfund Amendments and Reauthorization Act.

Manganese Compounds
Conoco Lake Charles Refi

EPA FORM R PART I. FACILITY IDENTIFICATION SECTION

1.1 Are you claiming the chemical identity on page 3 trade secret?
[] Yes (Answer question 1.2; Attach substantiation forms.) [X] No (Do not answer 1.2; Go to question 1.3.)

1.2 If "Yes" in 1.1, is this copy:
[] Sanitized [] Unsanitized

1.3 Reporting Year
1989

2. CERTIFICATION (Read and sign after completing all sections.) I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official

Don R. Unruh

Refinery Manager

Signature

Date signed

06-20-90

3. Facility Identification

3.1 Facility or Establishment Name
Conoco Lake Charles Refinery

Street Address
Old Spanish Trail

City
Westlake

County
Calcasieu

State
LA

Zip Code
70669

TRI Facility Identification Number
70669 CNCLK OLDSP

WHERE TO SEND COMPLETED FORMS:

1. EPCRA REPORTING CENTER
P.O. BOX 23799
WASHINGTON, DC 20026-3779
ATTN: TOXIC CHEMICAL RELEASE INVENTORY
2. APPROPRIATE STATE OFFICE (See instructions in Appendix G)

3.2 This report contains information for (Check one): a. [X] An entire facility b. [] Part of a facility.

3.3 Technical Contact
Brandt Butler

Telephone Number
(318) 491-5599

3.4 Public Contact
Don R. Unruh

Telephone Number
(318) 491-5222

3.5 SIC Code (4 digit)
a. 2911 b. NA c. NA d. NA e. NA f. NA

3.6 Latitude Longitude

Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
030	14	36	093	16	20

3.7 Dun & Bradstreet Number(s)
a. 00-842-7692 b. NA

3.8 EPA Identification Number(s) (RCRA I.D. No.)
a. IAD990683716 b. NA

3.9 NPDES Permit Number(s)
a. LA0003026 b. NA

3.10 Receiving Streams or Water Bodies (enter one name per box)
a. Bayou Verdine b. NA

c. NA d. NA

e. NA f. NA

1 Underground Injection Well Code (UIC) Identification Number(s)
a. NA b. NA

4. PARENT COMPANY INFORMATION

4.1 Name of Parent Company
E. I. Du Pont De Nemours

4.2 Parent Company's Dun & Bradstreet Number
00-131-5704

EPA Form R Part II. OFF-SITE LOCATIONS TO WHICH TOXIC CHEMICALS ARE TRANSFERRED IN WASTES

Manganese Compounds
Conoco Lake Charles Ref.

1. PUBLICLY OWNED TREATMENT WORKS (POTWs)

1.1 POTW name NA		1.2 POTW name NA	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip

2. OTHER OFF-SITE LOCATIONS (DO NOT REPORT LOCATIONS TO WHICH WASTES ARE SENT ONLY FOR RECYCLING OR REUSE).

2.1 Off-site location name BFI		2.2 Off-site location name CMI	
EPA Identification Number (RCRA ID No.) NA		EPA Identification Number (RCRA ID No.) LAD000777201	
Street Address Cities Service Hwy @ I-10		Street Address Rt 2, John Brannon Rd	
City Sulfur	County Calcasieu	City Carlyss	County Calcasieu
State LA	Zip 70664	State LA	Zip 70663
Is location under control of reporting facility or parent company? [] Yes [X] No		Is location under control of reporting facility or parent company? [] Yes [X] No	
2.3 Off-site location name NA		2.4 Off-site location name NA	
EPA Identification Number (RCRA ID No.)		EPA Identification Number (RCRA ID No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? [] Yes [] No		Is location under control of reporting facility or parent company? [] Yes [] No	
2.5 Off-site location name NA		2.6 Off-site location name NA	
EPA Identification Number (RCRA ID No.)		EPA Identification Number (RCRA ID No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? [] Yes [] No		Is location under control of reporting facility or parent company? [] Yes [] No	
[] Check if additional pages of Part II are attached. How many? []			

EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION

Manganese Compounds
Conoco Lake Charles Refi

1. CHEMICAL IDENTITY (Do not complete this section if you complete Section 2.)

1.1 [Reserved]

1.2 CAS Number (Enter the number exactly as it appears on the 313 list. Enter NA if reporting chemical category.)
NA1.3 Chemical or Chemical Category Name (Enter the name exactly as it appears on the 313 list.)
Manganese Compounds

1.4 Generic Chemical Name (Complete only if Part I, Section 1.1 is checked "Yes." Generic name must be structurally descriptive.)

2. MIXTURE COMPONENT IDENTITY (Do not complete this section if you complete Section 1.)

Generic Chemical Name Provided by Supplier (Limit the name to a maximum of 70 characters (e.g., numbers, letters, spaces, punctuation).)

3. ACTIVITIES AND USES OF THE CHEMICAL AT THE FACILITY (Check all that apply.)

- 3.1 Manufacture the chemical: a. ☐ Produce If produce or import: c. ☐ For on-site use/processing d. ☐ For sale/distribution
b. ☐ Import e. ☐ As a byproduct f. ☐ As an impurity
- 3.2 Process the chemical: a. ☐ As a reactant b. ☒ As a formulation component c. ☐ As an article component
d. ☐ Repackaging only
- 3.3 Otherwise use the chemical: a. ☐ As a chemical processing aid b. ☐ As a manufacturing aid c. ☐ Ancillary or other use

4. MAXIMUM AMOUNT OF THE CHEMICAL ON-SITE AT ANY TIME DURING THE CALENDAR YEAR

{05} (enter code)

5. RELEASES OF THE CHEMICAL TO THE ENVIRONMENT ON-SITE

		A. Total Releases (lbs/yr)			B. Basis of Estimate (enter code)	
		A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)						
5.1 Fugitive or non-point air emissions	5.1a	☐	☐	☐	250 5.1b ☐	
5.2 Stack or point air emissions	5.2a	☐	☐	☐	0 5.2b ☐	
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.1 ☒	5.3.1a	☐	☐	0 5.3.1b ☐	C. % From Stormwater 5.3.1c NA 5.3.2c 5.3.3c
	5.3.2 ☐	5.3.2a	☐	☐	NA 5.3.2b ☐	
	5.3.3 ☐	5.3.3a	☐	☐	NA 5.3.3b ☐	
5.4 Underground Injection	5.4a	☐	☐	☐	NA 5.4b ☐	
5.5 Releases to land						
5.5.1 On-site landfill	5.5.1a	☐	☐	☐	NA 5.5.1b ☐	
5.5.2 Land treatment/application farming	5.5.2a	☐	☐	☐	NA 5.5.2b ☐	
5.5.3 Surface impoundment	5.5.3a	☐	☐	☐	NA 5.5.3b ☐	
5.5.4 Other disposal	5.5.4a	☐	☐	☐	NA 5.5.4b ☐	

(Check if additional information is provided on Part IV - Supplemental Information)

EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION (continued)

Manganese Compounds
Conoco Lake Charles Ref

6. TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS

You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)		A. Total Transfers (lbs/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)
		A.1 Reporting Ranges 0 1-499 500-999		A.2 Enter Estimate		
6.1.1 Discharge to POTW (enter location number from Part II, Section 1.)	1. []	[]	[]	[]	NA	6.1.1b []
6.2.1 Other Off-Site Location (enter location number from Part II, Section 2.)	2. []	[]	[]	[]	NA	6.2.1b [] 6.2.1c
6.2.2 Other Off-Site Location (enter location number from Part II, Section 2.)	2. []	[]	[]	[]	NA	6.2.2b [] 6.2.2c
6.2.3 Other Off-Site Location (enter location number from Part II, Section 2.)	2. []	[]	[]	[]	NA	6.2.3b [] 6.2.3c

[] (Check if additional information is provided on Part IV - Supplemental Information)

7. WASTE TREATMENT METHODS AND EFFICIENCY

[X] Not Applicable (NA) - Check if no on-site treatment is applied to any wastestream containing the chemical or chemical category.

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data?	
					Yes	No
7.1a []	7.1b []	7.1c []	7.1d []	7.1e %	7.1f []	[]
7.2a []	7.2b []	7.2c []	7.2d []	7.2e %	7.2f []	[]
7.3a []	7.3b []	7.3c []	7.3d []	7.3e %	7.3f []	[]
7.4a []	7.4b []	7.4c []	7.4d []	7.4e %	7.4f []	[]
7.5a []	7.5b []	7.5c []	7.5d []	7.5e %	7.5f []	[]
7.6a []	7.6b []	7.6c []	7.6d []	7.6e %	7.6f []	[]
7.7a []	7.7b []	7.7c []	7.7d []	7.7e %	7.7f []	[]
7.8a []	7.8b []	7.8c []	7.8d []	7.8e %	7.8f []	[]
7.9a []	7.9b []	7.9c []	7.9d []	7.9e %	7.9f []	[]
7.10a []	7.10b []	7.10 []	7.10d []	7.10e %	7.10f []	[]

[] (Check if additional information is provided on Part IV - Supplemental Information)

8. POLLUTION PREVENTION: OPTIONAL INFORMATION ON WASTE MINIMIZATION

(Indicate actions taken to reduce the amount of the chemical being released from the facility. See the instructions for coded items and an explanation of what information to include.)

A. Type of Modification (enter code)	B. Quantity of the Chemical in Wastes Prior to Treatment or Disposal			C. Index	D. Reason for Action (enter code)
	Current reporting year (lbs/yr)	Prior year (lbs/yr)	Or Percent Change		
M []			[]+ []-	% []	R []

FORM R PART IV. SUPPLEMENTAL INFORMATION

Use this section if you need additional space for answers to questions in Part III.
Number the lines used sequentially from lines in prior sections (e.g., 5.3.4, 6.1.2, 7.11)

Manganese Compounds
Conoco Lake Charles Refi

ADDITIONAL INFORMATION ON RELEASES OF THE CHEMICAL TO THE ENVIRONMENT
(Part III, Section 5.3)

You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Releases (lbs/yr)			B. Basis of Estimate (enter code)	
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.[] [] []	5.3.[]a [] [] []		5.3.[]b [] []	C. % From Stormwater 5.3.[]c
	5.3.[] [] []	5.3.[]a [] [] []		5.3.[]b [] []	5.3.[]c
	5.3.[] [] []	5.3.[]a [] [] []		5.3.[]b [] []	5.3.[]c

ADDITIONAL INFORMATION ON TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS
(Part III, Section 6)

You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Transfers (lbs/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/Disposal (enter code)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
6 [] Discharge to POTW (enter location number from Part II, Section 1.)	1.[] [] []			6.1.[]b [] []	
6.2.[] Other off-site location (enter location number from Part II, Section 2.)	2.[] [] []			6.2.[]b [] []	6.2.[]c
6.2.[] Other off-site location (enter location number from Part II, Section 2.)	2.[] [] []			6.2.[]b [] []	6.2.[]c
6.2.[] Other off-site location (enter location number from Part II, Section 2.)	2.[] [] []			6.2.[]b [] []	6.2.[]c

ADDITIONAL INFORMATION ON WASTE TREATMENT METHODS AND EFFICIENCY (Part III, Section 7)

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data?	
					Yes	No
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]

Methanol
Conoco Lake Charles Refi

EPA FORM R PART 1. FACILITY IDENTIFICATION SECTION

1.1 Are you claiming the chemical identity on page 3 trade secret? ☐ Yes (Answer question 1.2; Attach substantiation forms.) ☒ No (Do not answer 1.2; Go to question 1.3.) 1.2 If "Yes" in 1.1, is this copy: ☐ Sanitized ☐ Unsanitized 1.3 Reporting Year 1989

2. CERTIFICATION (Read and sign after completing all sections.) I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official
Don R. Unruh Refinery Manager

Signature Date signed
06-20-90

3. Facility Identification

Facility or Establishment Name
Conoco Lake Charles Refinery

Street Address
Old Spanish Trail

3.1 City Westlake County Calcasieu

State LA Zip Code 70669

TRI Facility Identification Number
70669 CNCLK OLDSP

WHERE TO SEND COMPLETED FORMS:

1. EPCRA REPORTING CENTER
P.O. BOX 23799
WASHINGTON, DC 20026-3779
ATTN: TOXIC CHEMICAL RELEASE INVENTORY

2. APPROPRIATE STATE OFFICE (See instructions in Appendix G)

3.2 This report contains information for (Check one): a. ☒ An entire facility b. ☐ Part of a facility.

3.3 Technical Contact Brandt Butler Telephone Number (318) 491-5599

3.4 Public Contact Don R. Unruh Telephone Number (318) 491-5222

3.5 SIC Code (4 digit) a. 2911 b. NA c. NA d. NA e. NA f. NA

3.6 Latitude Longitude
Degrees Minutes Seconds Degrees Minutes Seconds
030 14 36 093 16 20

3.7 Dun & Bradstreet Number(s) a. 00-842-7692 b. NA

3.8 EPA Identification Number(s) (RCRA I.D. No.) a. IAD990683716 b. NA

3.9 NPDES Permit Number(s) a. LA0003026 b. NA

3.10 Receiving Streams or Water Bodies (enter one name per box) a. Bayou Verdine b. NA
c. NA d. NA
e. NA f. NA

3.11 Underground Injection Well Code (UIC) Identification Number(s) a. NA b. NA

4. PARENT COMPANY INFORMATION

4.1 Name of Parent Company E. I. Du Pont De Nemours 4.2 Parent Company's Dun & Bradstreet Number 00-131-5704

PA Form R Part II. OFF-SITE LOCATIONS TO WHICH TOXIC CHEMICALS ARE TRANSFERRED IN WASTES

Methanol
Conoco Lake Charles Refi

1. PUBLICLY OWNED TREATMENT WORKS (POTWs)

1.1 POTW name NA		1.2 POTW name NA	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip

2. OTHER OFF-SITE LOCATIONS (DO NOT REPORT LOCATIONS TO WHICH WASTES ARE SENT ONLY FOR RECYCLING OR REUSE).

2.1 Off-site location name BFI		2.2 Off-site location name CWM	
EPA Identification Number (RCRA ID No.) NA		EPA Identification Number (RCRA ID No.) LAD000777201	
Street Address Cities Service Hwy @ I-10		Street Address Rt 2, John Brannon Rd	
City Sulfur	County Calcasieu	City Carlyss	County Calcasieu
State LA	Zip 70664	State LA	Zip 70663
Is location under control of reporting facility or parent company? ☐ Yes ☒ No		Is location under control of reporting facility or parent company? ☐ Yes ☒ No	

2.3 Off-site location name NA		2.4 Off-site location name NA	
EPA Identification Number (RCRA ID No.)		EPA Identification Number (RCRA ID No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? ☐ Yes ☐ No		Is location under control of reporting facility or parent company? ☐ Yes ☐ No	

2.5 Off-site location name NA		2.6 Off-site location name NA	
EPA Identification Number (RCRA ID No.)		EPA Identification Number (RCRA ID No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? ☐ Yes ☐ No		Is location under control of reporting facility or parent company? ☐ Yes ☐ No	

☐ Check if additional pages of Part II are attached. How many? ☐

EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION

Methanol
Conoco Lake Charles Ref

1. CHEMICAL IDENTITY (Do not complete this section if you complete Section 2.)

1.1 [Reserved]

1.2 CAS Number (Enter the number exactly as it appears on the 313 list. Enter NA if reporting chemical category.)
000067-56-11.3 Chemical or Chemical Category Name (Enter the name exactly as it appears on the 313 list.)
Methanol

1.4 Generic Chemical Name (Complete only if Part I, Section 1.1 is checked "Yes." Generic name must be structurally descriptive.)

2. MIXTURE COMPONENT IDENTITY (Do not complete this section if you complete Section 1.)

Generic Chemical Name Provided by Supplier (Limit the name to a maximum of 70 characters (e.g., numbers, letters, spaces, punctuation).)

3. ACTIVITIES AND USES OF THE CHEMICAL AT THE FACILITY (Check all that apply.)

3.1 Manufacture the chemical: a. ☐ Produce If produce or import: c. ☐ For on-site use/processing d. ☐ For sale/distribution
b. ☐ Import e. ☐ As a byproduct f. ☐ As an impurity3.2 Process the chemical: a. ☐ As a reactant b. ☒ As a formulation component c. ☐ As an article component
d. ☐ Repackaging only3.3 Otherwise use the chemical: a. ☐ As a chemical processing aid b. ☐ As a manufacturing aid c. ☒ Ancillary or other use

4. MAXIMUM AMOUNT OF THE CHEMICAL ON-SITE AT ANY TIME DURING THE CALENDAR YEAR

[06] (enter code)

5. RELEASES OF THE CHEMICAL TO THE ENVIRONMENT ON-SITE

You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)

		A. Total Releases (lbs/yr)				B. Basis of Estimate (enter code)	
		A.1 Reporting Ranges			A.2 Enter Estimate		
		0	1-499	500-999			
5.1 Fugitive or non-point air emissions	5.1a	☐	☐	☐	1500	5.1b	☐
5.2 Stack or point air emissions	5.2a	☐	☐	☐	1200	5.2b	☐
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.1 [a] 5.3.2 [] 5.3.3 []	5.3.1a 5.3.2a 5.3.3a	☐ ☐ ☐	☐ ☐ ☐	0 NA NA	5.3.1b 5.3.2b 5.3.3b	☐ ☐ ☐
5.4 Underground Injection	5.4a	☐	☐	☐	NA	5.4b	☐
5.5 Releases to land							
5.5.1 On-site landfill	5.5.1a	☐	☐	☐	NA	5.5.1b	☐
5.5.2 Land treatment/application farming	5.5.2a	☐	☐	☐	NA	5.5.2b	☐
5.5.3 Surface impoundment	5.5.3a	☐	☐	☐	NA	5.5.3b	☐
5.5.4 Other disposal	5.5.4a	☐	☐	☐	NA	5.5.4b	☐

C. % From Stormwater
5.3.1c NA
5.3.2c
5.3.3c

[] (Check if additional information is provided on Part IV - Supplemental Information)

A FORM R PART III. CHEMICAL-SPECIFIC INFORMATION (continued)

Methanol
Conoco Lake Charles Refi

6. TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS

You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Transfers (lbs/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
5.1.1 Discharge to POTW (enter location number from Part II, Section 1.) 1. []	[] [] []	NA		6.1.1b []	
5.2.1 Other Off-Site Location (enter location number from Part II, Section 2.) 2. []	[] [] []	NA		6.2.1b []	6.2.1c
6.2.2 Other Off-Site Location (enter location number from Part II, Section 2.) 2. []	[] [] []	NA		6.2.2b []	6.2.2c
6.2.3 Other Off-Site Location (enter location number from Part II, Section 2.) 2. []	[] [] []	NA		6.2.3b []	6.2.3c

[] (Check if additional information is provided on Part IV - Supplemental Information)

7. WASTE TREATMENT METHODS AND EFFICIENCY

[] Not Applicable (NA) - Check if no on-site treatment is applied to any wastestream containing the chemical or chemical category.

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data? Yes No
7.1a [W]	7.1b [B11]	7.1c [4]	7.1d []	7.1e 100.00 %	7.1f [] [X]
7.2a []	7.2b [NA]	7.2c []	7.2d []	7.2e %	7.2f [] []
7.3a []	7.3b [NA]	7.3c []	7.3d []	7.3e %	7.3f [] []
7.4a []	7.4b [NA]	7.4c []	7.4d []	7.4e %	7.4f [] []
7.5a []	7.5b [NA]	7.5c []	7.5d []	7.5e %	7.5f [] []
7.6a []	7.6b [NA]	7.6c []	7.6d []	7.6e %	7.6f [] []
7.7a []	7.7b [NA]	7.7c []	7.7d []	7.7e %	7.7f [] []
7.8a []	7.8b [NA]	7.8c []	7.8d []	7.8e %	7.8f [] []
7.9a []	7.9b [NA]	7.9c []	7.9d []	7.9e %	7.9f [] []
7.10a []	7.10b [NA]	7.10 []	7.10d []	7.10e %	7.10f [] []

[] (Check if additional information is provided on Part IV - Supplemental Information)

8. POLLUTION PREVENTION: OPTIONAL INFORMATION ON WASTE MINIMIZATION

(Indicate actions taken to reduce the amount of the chemical being released from the facility. See the instructions for coded items and an explanation of what information to include.)

A. Type of Modification (enter code)	B. Quantity of the Chemical in Wastes Prior to Treatment or Disposal			C. Index	D. Reason for Action (enter code)
	Current reporting year (lbs/yr)	Prior year (lbs/yr)	Or Percent Change		
M []			[]+ []-	% []	R []

EPA FORM R PART IV. SUPPLEMENTAL INFORMATION

Use this section if you need additional space for answers to questions in Part III.
Number the lines used sequentially from lines in prior sections (e.g., 5.3.4, 6.1.2, 7.11)

Methanol
Conoco Lake Charles Ref

ADDITIONAL INFORMATION ON RELEASES OF THE CHEMICAL TO THE ENVIRONMENT
(Part III, Section 5.3)

You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Releases (lbs/yr)			B. Basis of Estimate (enter code)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate		
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.[] [] []	5.3.[]a [] [] []	5.3.[]b [] []	C. % From Stormwater 5.3.[]c
	5.3.[] [] []	5.3.[]a [] [] []	5.3.[]b [] []	5.3.[]c
	5.3.[] [] []	5.3.[]a [] [] []	5.3.[]b [] []	5.3.[]c

ADDITIONAL INFORMATION ON TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS
(Part III, Section 6)

You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Transfers (lbs/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
6.1.[] (enter location number from Part II, Section 1.)	1.[] [] []	[] [] []	6.1.[]b [] []		
6.2.[] (enter location number from Part II, Section 2.)	2.[] [] []	[] [] []	6.2.[]b [] []	6.2.[]c	
6.2.[] (enter location number from Part II, Section 2.)	2.[] [] []	[] [] []	6.2.[]b [] []	6.2.[]c	
6.2.[] (enter location number from Part II, Section 2.)	2.[] [] []	[] [] []	6.2.[]b [] []	6.2.[]c	

ADDITIONAL INFORMATION ON WASTE TREATMENT METHODS AND EFFICIENCY (Part III, Section 7)

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data?	
					Yes	No
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]

EPA U.S. Environmental Protection Agency
TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM
Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986,
also known as Title III of the Superfund Amendments and Reauthorization Act.

Page 1 of 5

Molybdenum trioxide
Conoco Lake Charles Refi

EPA FORM R PART 1. FACILITY IDENTIFICATION SECTION

- 1.1 Are you claiming the chemical identity on page 3 trade secret? ☐ Yes (Answer question 1.2; Attach substantiation forms.) ☒ No (Do not answer 1.2; Go to question 1.3.) 1.2 If "Yes" in 1.1, is this copy: ☐ Sanitized ☐ Unsanitized 1.3 Reporting Year 1989

2. CERTIFICATION (Read and sign after completing all sections.) I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official
Don R. Unruh Refinery Manager

Signature Date signed
06-20-90

3. Facility Identification

Facility or Establishment Name
Conoco Lake Charles Refinery
Street Address
Old Spanish Trail
City
Westlake County
Calcasieu
State
LA Zip Code
70669
TRI Facility Identification Number
70669 CNCLK OLDSP

WHERE TO SEND COMPLETED FORMS:

1. EPCRA REPORTING CENTER
P.O. BOX 23799
WASHINGTON, DC 20026-3779
ATTN: TOXIC CHEMICAL RELEASE INVENTORY
2. APPROPRIATE STATE OFFICE (See instructions in Appendix G)

3.2 This report contains information for (Check one): a. ☒ An entire facility b. ☐ Part of a facility.

3.3 Technical Contact
Brandt Butler Telephone Number
(318) 491-5599

3.4 Public Contact
Don R. Unruh Telephone Number
(318) 491-5222

3.5 SIC Code (4 digit) a. 2911 b. NA c. NA d. NA e. NA f. NA

3.6 Latitude Longitude
Degrees Minutes Seconds Degrees Minutes Seconds
030 14 36 093 16 20

3.7 Dun & Bradstreet Number(s) a. 00-842-7692 b. NA

3.8 EPA Identification Number(s) (RCRA I.D. No.) a. LAD990683716 b. NA

3.9 NPDES Permit Number(s) a. LA0003026 b. NA

3.10 Receiving Streams or Water Bodies (enter one name per box) a. Bayou Verdine b. NA
c. NA d. NA
e. NA f. NA

11 Underground Injection Well Code (UIC) Identification Number(s) a. NA b. NA

4. PARENT COMPANY INFORMATION

4.1 Name of Parent Company E. I. Du Pont De Nemours 4.2 Parent Company's Dun & Bradstreet Number 00-131-5704

EPA Form R Part II. OFF-SITE LOCATIONS TO WHICH TOXIC CHEMICALS ARE TRANSFERRED IN WASTES

Molybdenum trioxide
Conoco Lake Charles

1. PUBLICLY OWNED TREATMENT WORKS (POTWs)

1.1 POTW name NA		1.2 POTW name NA	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip

2. OTHER OFF-SITE LOCATIONS (DO NOT REPORT LOCATIONS TO WHICH WASTES ARE SENT ONLY FOR RECYCLING OR REUSE).

2.1 Off-site location name BFI		2.2 Off-site location name CWM	
EPA Identification Number (RCRA ID No.) NA		EPA Identification Number (RCRA ID No.) LAD000777201	
Street Address Cities Service Hwy @ I-10		Street Address Rt 2, John Brannon Rd	
City Sulfur	County Calcasieu	City Carlyss	County Calcasieu
State LA	Zip 70664	State LA	Zip 70663
Is location under control of reporting facility or parent company? [] Yes [X] No		Is location under control of reporting facility or parent company? [] Yes	
2.3 Off-site location name NA		2.4 Off-site location name NA	
EPA Identification Number (RCRA ID No.)		EPA Identification Number (RCRA ID No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? [] Yes [] No		Is location under control of reporting facility or parent company? [] Yes	
2.5 Off-site location name NA		2.6 Off-site location name NA	
EPA Identification Number (RCRA ID No.)		EPA Identification Number (RCRA ID No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? [] Yes [] No		Is location under control of reporting facility or parent company? [] Yes	
[] Check if additional pages of Part II are attached. How many? []			

SAL 000004357

9A FORM R PART III. CHEMICAL-SPECIFIC INFORMATION

Molybdenum trioxide
Camoco Lake Charles Refi

1. CHEMICAL IDENTITY (Do not complete this section if you complete Section 2.)

1.1 [Reserved]

1.2 CAS Number (Enter the number exactly as it appears on the 313 list. Enter NA if reporting chemical category.) 001313-27-5

1.3 Chemical or Chemical Category Name (Enter the name exactly as it appears on the 313 list.) Molybdenum trioxide

1.4 Generic Chemical Name (Complete only if Part I, Section 1.1 is checked "Yes." Generic name must be structurally descriptive.)

2. MIXTURE COMPONENT IDENTITY (Do not complete this section if you complete Section 1.)

Generic Chemical Name Provided by Supplier (Limit the name to a maximum of 70 characters (e.g., numbers, letters, spaces, punctuation).)

3. ACTIVITIES AND USES OF THE CHEMICAL AT THE FACILITY (Check all that apply.)

3.1 Manufacture the chemical: a. [] Produce b. [] Import c. [] For sale/distribution d. [] For sale/use/processing e. [] As a byproduct f. [] As an impurity

3.2 Process the chemical: a. [] As a reactant b. [] As a formulation c. [] As an article component

3.3 Otherwise use the chemical: a. [X] As a chemical processing aid b. [] As a manufacturing aid c. [] Ancillary or other use

4. MAXIMUM AMOUNT OF THE CHEMICAL ON-SITE AT ANY TIME DURING THE CALENDAR YEAR

(05) (enter code)

5. RELEASES OF THE CHEMICAL TO THE ENVIRONMENT ON-SITE

A. Total Releases (lbs/yr)
B. Basis of Estimate (enter code)
C. % From Stormwater

You may report releases of less than 1,000 lbs by checking under A.1. (Do not use both A.1 and A.2)

A.1 Reporting Ranges 0 1-499 500-999
A.2 Enter Estimate

5.1 Fugitive or non-point air emissions 5.1a [] 5.1b [] 120

5.2 Stack or point air emissions 5.2a [] 5.2b []

5.3 Discharges to receiving streams or water bodies 5.3.1 [] 5.3.2 [] 5.3.3 [] 5.3.4 [] 5.3.5 [] 5.3.6 [] 5.3.7 [] 5.3.8 [] 5.3.9 [] 5.3.10 [] 5.3.11 [] 5.3.12 [] 5.3.13 [] 5.3.14 [] 5.3.15 [] 5.3.16 [] 5.3.17 [] 5.3.18 [] 5.3.19 [] 5.3.20 [] 5.3.21 [] 5.3.22 [] 5.3.23 [] 5.3.24 [] 5.3.25 [] 5.3.26 [] 5.3.27 [] 5.3.28 [] 5.3.29 [] 5.3.30 [] 5.3.31 [] 5.3.32 [] 5.3.33 [] 5.3.34 [] 5.3.35 [] 5.3.36 [] 5.3.37 [] 5.3.38 [] 5.3.39 [] 5.3.40 [] 5.3.41 [] 5.3.42 [] 5.3.43 [] 5.3.44 [] 5.3.45 [] 5.3.46 [] 5.3.47 [] 5.3.48 [] 5.3.49 [] 5.3.50 [] 5.3.51 [] 5.3.52 [] 5.3.53 [] 5.3.54 [] 5.3.55 [] 5.3.56 [] 5.3.57 [] 5.3.58 [] 5.3.59 [] 5.3.60 [] 5.3.61 [] 5.3.62 [] 5.3.63 [] 5.3.64 [] 5.3.65 [] 5.3.66 [] 5.3.67 [] 5.3.68 [] 5.3.69 [] 5.3.70 [] 5.3.71 [] 5.3.72 [] 5.3.73 [] 5.3.74 [] 5.3.75 [] 5.3.76 [] 5.3.77 [] 5.3.78 [] 5.3.79 [] 5.3.80 [] 5.3.81 [] 5.3.82 [] 5.3.83 [] 5.3.84 [] 5.3.85 [] 5.3.86 [] 5.3.87 [] 5.3.88 [] 5.3.89 [] 5.3.90 [] 5.3.91 [] 5.3.92 [] 5.3.93 [] 5.3.94 [] 5.3.95 [] 5.3.96 [] 5.3.97 [] 5.3.98 [] 5.3.99 [] 5.3.100 []

5.4 Underground Injection 5.4a [] 5.4b []

5.5 Releases to land 5.5.1 On-site landfill 5.5.2 Land treatment/application farming 5.5.3 Surface impoundment 5.5.4 Other disposal

(Check if additional information is provided on Part IV - Supplemental Information)

EPA Form 9350-1 (7-90) Revised - Do not use previous versions.

313 ADVISOR

SAL 000004358

EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION (continued)

Molybdenum trioxide
Conoco Lake Charles Ref

6. TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS

You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Transfers (lbs/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
6.1.1 Discharge to POTW (enter location number from Part II, Section 1.) 1. []	[] [] []	NA		6.1.1b []	
6.2.1 Other Off-Site Location (enter location number from Part II, Section 2.) 2. []	[] [] []	NA		6.2.1b []	6.2.1c
6.2.2 Other Off-Site Location (enter location number from Part II, Section 2.) 2. []	[] [] []	NA		6.2.2b []	6.2.2c
6.2.3 Other Off-Site Location (enter location number from Part II, Section 2.) 2. []	[] [] []	NA		6.2.3b []	6.2.3c

[] (Check if additional information is provided on Part IV - Supplemental Information)

7. WASTE TREATMENT METHODS AND EFFICIENCY

[X] Not Applicable (NA) - Check if no on-site treatment is applied to any wastestream containing the chemical or chemical category.

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data? Yes No
7.1a []	7.1b []	7.1c []	7.1d []	7.1e %	7.1f [] []
7.2a []	7.2b []	7.2c []	7.2d []	7.2e %	7.2f [] []
7.3a []	7.3b []	7.3c []	7.3d []	7.3e %	7.3f [] []
7.4a []	7.4b []	7.4c []	7.4d []	7.4e %	7.4f [] []
7.5a []	7.5b []	7.5c []	7.5d []	7.5e %	7.5f [] []
7.6a []	7.6b []	7.6c []	7.6d []	7.6e %	7.6f [] []
7.7a []	7.7b []	7.7c []	7.7d []	7.7e %	7.7f [] []
7.8a []	7.8b []	7.8c []	7.8d []	7.8e %	7.8f [] []
7.9a []	7.9b []	7.9c []	7.9d []	7.9e %	7.9f [] []
7.10a []	7.10b []	7.10 []	7.10d []	7.10e %	7.10f [] []

[] (Check if additional information is provided on Part IV - Supplemental Information)

8. POLLUTION PREVENTION: OPTIONAL INFORMATION ON WASTE MINIMIZATION

(Indicate actions taken to reduce the amount of the chemical being released from the facility. See the instructions for coded items and an explanation of what information to include.)

A. Type of Modification (enter code)	B. Quantity of the Chemical in Wastes Prior to Treatment or Disposal			C. Index	D. Reason for Action (enter code)
	Current reporting year (lbs/yr)	Prior year (lbs/yr)	Or Percent Change		
M []			[]+ []-	% []	R []

EPA FORM R PART IV. SUPPLEMENTAL INFORMATION

Use this section if you need additional space for answers to questions in Part III.
Number the lines used sequentially from lines in prior sections (e.g., 5.3.4, 6.1.2, 7.11)

Molybdenum trioxide
Conoco Lake Charles Refi

ADDITIONAL INFORMATION ON RELEASES OF THE CHEMICAL TO THE ENVIRONMENT
(Part III, Section 5.3)

	A. Total Releases (lbs/yr)			B. Basis of Estimate (enter code)	
	A.1 Reporting Ranges 0 1-499 500-999		A.2 Enter Estimate		
You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)					
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.[] [] []	5.3.[]a [] [] []		5.3.[]b [] []	C. % From Stormwater 5.3.[]c
	5.3.[] [] []	5.3.[]a [] [] []		5.3.[]b [] []	5.3.[]c
	5.3.[] [] []	5.3.[]a [] [] []		5.3.[]b [] []	5.3.[]c

ADDITIONAL INFORMATION ON TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS
(Part III, Section 6)

	A. Total Transfers (lbs/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/Disposal (enter code)
	A.1 Reporting Ranges 0 1-499 500-999		A.2 Enter Estimate		
You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)					
1.[] (enter location number from Part II, Section 1.)	1.[]	[] [] []		6.1.[]b []	
6.2.[] (enter location number from Part II, Section 2.)	2.[]	[] [] []		6.2.[]b []	6.2.[]c
6.2.[] (enter location number from Part II, Section 2.)	2.[]	[] [] []		6.2.[]b []	6.2.[]c
6.2.[] (enter location number from Part II, Section 2.)	2.[]	[] [] []		6.2.[]b []	6.2.[]c

ADDITIONAL INFORMATION ON WASTE TREATMENT METHODS AND EFFICIENCY (Part III, Section 7)

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data?	
					Yes	No
7.[]a []	7.[]b []	7.[]c []	7.[]d []	7.[]e %	7.[]f []	[]
7.[]a []	7.[]b []	7.[]c []	7.[]d []	7.[]e %	7.[]f []	[]
7.[]a []	7.[]b []	7.[]c []	7.[]d []	7.[]e %	7.[]f []	[]
7.[]a []	7.[]b []	7.[]c []	7.[]d []	7.[]e %	7.[]f []	[]
7.[]a []	7.[]b []	7.[]c []	7.[]d []	7.[]e %	7.[]f []	[]
7.[]a []	7.[]b []	7.[]c []	7.[]d []	7.[]e %	7.[]f []	[]
7.[]a []	7.[]b []	7.[]c []	7.[]d []	7.[]e %	7.[]f []	[]
7.[]a []	7.[]b []	7.[]c []	7.[]d []	7.[]e %	7.[]f []	[]

EPA U.S. Environmental Protection Agency
TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM
Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986,
also known as Title III of the Superfund Amendments and Reauthorization Act.

Page 1 of 5

Naphthalene
Conoco Lake Charles Ref

EPA FORM R PART I. FACILITY IDENTIFICATION SECTION

1.1 Are you claiming the chemical identity on page 3 trade secret? ☐ Yes (Answer question 1.2; Attach substantiation forms.) ☒ No (Do not answer 1.2; Go to question 1.3.) 1.2 If "Yes" in 1.1, is this copy: ☐ Sanitized ☐ Unsanitized 1.3 Reporting Year 1989

2. CERTIFICATION (Read and sign after completing all sections.) I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official
Don R. Unruh Refinery Manager

Signature Date signed
06-20-90

3. Facility Identification

3.1 Facility or Establishment Name
Conoco Lake Charles Refinery
Street Address
Old Spanish Trail
City
Westlake County
Calcasieu
State
LA Zip Code
70669
TRI Facility Identification Number
70669 CNCLK OLDSP

WHERE TO SEND COMPLETED FORMS:

1. EPCRA REPORTING CENTER
P.O. BOX 23799
WASHINGTON, DC 20026-3779
ATTN: TOXIC CHEMICAL RELEASE INVENTORY
2. APPROPRIATE STATE OFFICE (See instructions in Appendix G)

3.2 This report contains information for (Check one): a. ☒ An entire facility b. ☐ Part of a facility.

3.3 Technical Contact
Brandt Butler Telephone Number
(318) 491-5599

3.4 Public Contact
Don R. Unruh Telephone Number
(318) 491-5222

3.5 SIC Code (4 digit) a. 2911 b. NA c. NA d. NA e. NA f. NA

3.6 Latitude Longitude
Degrees Minutes Seconds Degrees Minutes Seconds
030 14 36 093 16 20

3.7 Dun & Bradstreet Number(s) a. 00-842-7692 b. NA

3.8 EPA Identification Number(s) (RCRA I.D. No.) a. LAD990683716 b. NA

3.9 NPDES Permit Number(s) a. LA0003026 b. NA

3.10 Receiving Streams or Water Bodies (enter one name per box) a. Bayou Verdine b. NA
c. NA d. NA
e. NA f. NA

3.11 Underground Injection Well Code (UIC) Identification Number(s) a. NA b. NA

4. PARENT COMPANY INFORMATION

4.1 Name of Parent Company
E. I. Du Pont De Nemours 4.2 Parent Company's Dun & Bradstreet Number
00-131-5704

Form R Part II. OFF-SITE LOCATIONS TO WHICH TOXIC CHEMICALS ARE TRANSFERRED IN WASTES

Naphthalene
Conoco Lake Charles Refi

1. PUBLICLY OWNED TREATMENT WORKS (POTWs)

1.1 POTW name
NA1.2 POTW name
NA

Street Address

Street Address

City County

City County

State Zip

State Zip

2. OTHER OFF-SITE LOCATIONS (DO NOT REPORT LOCATIONS TO WHICH WASTES ARE SENT ONLY FOR RECYCLING OR REUSE).

2.1 Off-site location name
BFI2.2 Off-site location name
CMTIEPA Identification Number (RCRA ID No.)
NAEPA Identification Number (RCRA ID No.)
LAD000777201Street Address
Cities Service Hwy @ I-10Street Address
Rt 2, John Brannon RdCity County
Sulfur CalcasieuCity County
Carlyss CalcasieuState Zip
LA 70664State Zip
LA 70663Is location under control of reporting facility or parent company?
☐ Yes ☒ NoIs location under control of reporting facility or parent company?
☐ Yes ☒ No2.3 Off-site location name
NA2.4 Off-site location name
NA

EPA Identification Number (RCRA ID No.)

EPA Identification Number (RCRA ID No.)

Street Address

Street Address

City County

City County

State Zip

State Zip

Is location under control of reporting facility or parent company?
☐ Yes ☐ NoIs location under control of reporting facility or parent company?
☐ Yes ☐ No2.5 Off-site location name
NA2.6 Off-site location name
NA

EPA Identification Number (RCRA ID No.)

EPA Identification Number (RCRA ID No.)

Street Address

Street Address

City County

City County

State Zip

State Zip

Is location under control of reporting facility or parent company?
☐ Yes ☐ NoIs location under control of reporting facility or parent company?
☐ Yes ☐ No☐ Check if additional pages of Part II are attached. How many? ☐

EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION

Naphthalene
Conoco Lake Charles Refi

1. CHEMICAL IDENTITY (Do not complete this section if you complete Section 2.)

1.1 [Reserved]

1.2 CAS Number (Enter the number exactly as it appears on the 313 list. Enter NA if reporting chemical category.)
000091-20-31.3 Chemical or Chemical Category Name (Enter the name exactly as it appears on the 313 list.)
Naphthalene

1.4 Generic Chemical Name (Complete only if Part I, Section 1.1 is checked "Yes." Generic name must be structurally descriptive.)

2. MIXTURE COMPONENT IDENTITY (Do not complete this section if you complete Section 1.)

Generic Chemical Name Provided by Supplier (Limit the name to a maximum of 70 characters (e.g., numbers, letters, spaces, punctuation).)

3. ACTIVITIES AND USES OF THE CHEMICAL AT THE FACILITY (Check all that apply.)

- 3.1 Manufacture the chemical: a. ☐ Produce If produce or import: c. ☐ For on-site use/processing d. ☐ For sale/distribution
b. ☐ Import e. ☐ As a byproduct f. ☐ As an impurity
- 3.2 Process the chemical: a. ☒ As a reactant b. ☐ As a formulation component c. ☐ As an article component
d. ☐ Repackaging only
- 3.3 Otherwise use the chemical: a. ☐ As a chemical processing aid b. ☐ As a manufacturing aid c. ☒ Ancillary or other use

4. MAXIMUM AMOUNT OF THE CHEMICAL ON-SITE AT ANY TIME DURING THE CALENDAR YEAR

[07] (enter code)

5. RELEASES OF THE CHEMICAL TO THE ENVIRONMENT ON-SITE

You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)

		A. Total Releases (lbs/yr)			B. Basis of Estimate (enter code)	
		A.1 Reporting Ranges			A.2 Enter Estimate	
		0	1-499	500-999		
You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)						
5.1 Fugitive or non-point air emissions	5.1a	[]	[]	[]	7300	5.1b [O]
5.2 Stack or point air emissions	5.2a	[]	[]	[]	3200	5.2b [O]
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.1 [a] 5.3.2 [] 5.3.3 []	5.3.1a 5.3.2a 5.3.3a	[] [] []	[] [] []	34 NA NA	5.3.1b [M] 5.3.2b [] 5.3.3b []
					C. % From Stormwater	
					5.3.1c NA 5.3.2c 5.3.3c	
5.4 Underground Injection	5.4a	[]	[]	[]	NA	5.4b []
5.5 Releases to land						
5.5.1 On-site landfill	5.5.1a	[]	[]	[]	NA	5.5.1b []
5.5.2 Land treatment/application farming	5.5.2a	[]	[]	[]	NA	5.5.2b []
5.5.3 Surface impoundment	5.5.3a	[]	[]	[]	NA	5.5.3b []
5.5.4 Other disposal	5.5.4a	[]	[]	[]	NA	5.5.4b []

] (Check if additional information is provided on Part IV - Supplemental Information)

EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION (continued)

Naphthalene
Conoco Lake Charles Refi

6. TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS

	You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Transfers (lbs/yr)		B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)
		A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate		
6.1.1 Discharge to POTW (enter location number from Part II, Section 1.)	1. []	[] [] []	NA	6.1.1b []	
6.2.1 Other Off-Site Location (enter location number from Part II, Section 2.)	2. [2]	[] [] []	980	6.2.1b [O]	6.2.1c M72
6.2.2 Other Off-Site Location (enter location number from Part II, Section 2.)	2. [1]	[] [] []	1200	6.2.2b [O]	6.2.2c M72
6.2.3 Other Off-Site Location (enter location number from Part II, Section 2.)	2. []	[] [] []	NA	6.2.3b []	6.2.3c

[] (Check if additional information is provided on Part IV - Supplemental Information)

7. WASTE TREATMENT METHODS AND EFFICIENCY

[] Not Applicable (NA) - Check if no on-site treatment is applied to any wastestream containing the chemical or chemical category.

General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data?	
					Yes	No
7.1a [W]	7.1b [B11]	7.1c [4]	7.1d []	7.1e 95.00 %	7.1f []	[X]
7.2a [A]	7.2b [A07]	7.2c [2]	7.2d []	7.2e 88.00 %	7.2f [X]	[]
7.3a []	7.3b [NA]	7.3c []	7.3d []	7.3e %	7.3f []	[]
7.4a []	7.4b [NA]	7.4c []	7.4d []	7.4e %	7.4f []	[]
7.5a []	7.5b [NA]	7.5c []	7.5d []	7.5e %	7.5f []	[]
7.6a []	7.6b [NA]	7.6c []	7.6d []	7.6e %	7.6f []	[]
7.7a []	7.7b [NA]	7.7c []	7.7d []	7.7e %	7.7f []	[]
7.8a []	7.8b [NA]	7.8c []	7.8d []	7.8e %	7.8f []	[]
7.9a []	7.9b [NA]	7.9c []	7.9d []	7.9e %	7.9f []	[]
7.10a []	7.10b [NA]	7.10 []	7.10d []	7.10e %	7.10f []	[]

[] (Check if additional information is provided on Part IV - Supplemental Information)

8. POLLUTION PREVENTION: OPTIONAL INFORMATION ON WASTE MINIMIZATION

(Indicate actions taken to reduce the amount of the chemical being released from the facility. See the instructions for coded items and an explanation of what information to include.)

A. Type of Modification (enter code)	B. Quantity of the Chemical in Wastes Prior to Treatment or Disposal		C. Index	D. Reason for Action (enter code)
	Current reporting year (lbs/yr)	Prior year (lbs/yr)	Or Percent Change	
M []			[]+ []- %	R []

EPA FORM R PART IV. SUPPLEMENTAL INFORMATION

Use this section if you need additional space for answers to questions in Part III.
Number the lines used sequentially from lines in prior sections (e.g., 5.3.4, 6.1.2, 7.11)

Naphthalene
Conoco Lake Charles Ref

ADDITIONAL INFORMATION ON RELEASES OF THE CHEMICAL TO THE ENVIRONMENT
(Part III, Section 5.3)

You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Releases (lbs/yr)			B. Basis of Estimate (enter code)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate		
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.[] [] []	5.3.[]a [] [] []	5.3.[]b [] [] []	5.3.[]c [] [] []
	5.3.[] [] []	5.3.[]a [] [] []	5.3.[]b [] [] []	5.3.[]c [] [] []
	5.3.[] [] []	5.3.[]a [] [] []	5.3.[]b [] [] []	5.3.[]c [] [] []

ADDITIONAL INFORMATION ON TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS
(Part III, Section 6)

You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Transfers (lbs/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
Discharge to POTW 1.[] (enter location number from Part II, Section 1.)	1.[] [] []	[] [] []		6.1.[]b [] []	
Other off-site location 6.2.[] (enter location number from Part II, Section 2.)	2.[] [] []	[] [] []		6.2.[]b [] []	6.2.[]c [] []
Other off-site location 6.2.[] (enter location number from Part II, Section 2.)	2.[] [] []	[] [] []		6.2.[]b [] []	6.2.[]c [] []
Other off-site location 6.2.[] (enter location number from Part II, Section 2.)	2.[] [] []	[] [] []		6.2.[]b [] []	6.2.[]c [] []

ADDITIONAL INFORMATION ON WASTE TREATMENT METHODS AND EFFICIENCY (Part III, Section 7)

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data?	
					Yes	No
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e [] []	%	7.[]f [] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e [] []	%	7.[]f [] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e [] []	%	7.[]f [] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e [] []	%	7.[]f [] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e [] []	%	7.[]f [] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e [] []	%	7.[]f [] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e [] []	%	7.[]f [] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e [] []	%	7.[]f [] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e [] []	%	7.[]f [] []

EPA U.S. Environmental Protection Agency
TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM
Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986,
so known as Title III of the Superfund Amendments and Reauthorization Act.

Page 1 of 5

Phosphoric acid
Conoco Lake Charles Refi

EPA FORM R PART 1. FACILITY IDENTIFICATION SECTION

1.1 Are you claiming the chemical identity on page 3 trade secret? ☐ Yes (Answer question 1.2; Attach substantiation forms.) ☒ No (Do not answer 1.2; Go to question 1.3.) 1.2 If "Yes" in 1.1, is this copy: ☐ Sanitized ☐ Unsanitized 1.3 Reporting Year 1989

2. CERTIFICATION (Read and sign after completing all sections.) I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official
Don R. Unruh Refinery Manager

Signature Date signed
06-20-90

3. Facility Identification

Facility or Establishment Name
Conoco Lake Charles Refinery
Street Address
Old Spanish Trail
City
Westlake County
Calcasieu
State
LA Zip Code
70669
TRI Facility Identification Number
70669 CNCLK OLDSP

WHERE TO SEND COMPLETED FORMS:

1. EPCRA REPORTING CENTER
P.O. BOX 23799
WASHINGTON, DC 20026-3779
ATTN: TOXIC CHEMICAL RELEASE INVENTORY
2. APPROPRIATE STATE OFFICE (See instructions in Appendix G)

3.2 This report contains information for (Check one): a. ☒ An entire facility b. ☐ Part of a facility.

3.3 Technical Contact Brandt Butler Telephone Number (318) 491-5599

3.4 Public Contact Don R. Unruh Telephone Number (318) 491-5222

3.5 SIC Code (4 digit) a. 2911 b. NA c. NA d. NA e. NA f. NA

3.6 Latitude Longitude
Degrees Minutes Seconds Degrees Minutes Seconds
030 14 36 093 16 20

3.7 Dun & Bradstreet Number(s) a. 00-842-7692 b. NA

3.8 EPA Identification Number(s) (RCRA I.D. No.) a. IAD990683716 b. NA

3.9 NPDES Permit Number(s) a. LA0003026 b. NA

3.10 Receiving Streams or Water Bodies (enter one name per box) a. Bayou Verdine b. NA
c. NA d. NA
e. NA f. NA

Underground Injection Well Code (UIC) Identification Number(s) a. NA b. NA

4. PARENT COMPANY INFORMATION

4.1 Name of Parent Company E. I. Du Pont De Nemours 4.2 Parent Company's Dun & Bradstreet Number 00-131-5704

EPA Form R Part II. OFF-SITE LOCATIONS TO WHICH TOXIC CHEMICALS ARE TRANSFERRED IN WASTES

Phosphoric acid
Conoco Lake Charles Ref

1. PUBLICLY OWNED TREATMENT WORKS (POTWs)

1.1 POTW name NA		1.2 POTW name NA	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip

2. OTHER OFF-SITE LOCATIONS (DO NOT REPORT LOCATIONS TO WHICH WASTES ARE SENT ONLY FOR RECYCLING OR REUSE).

2.1 Off-site location name BFI		2.2 Off-site location name CWMI	
EPA Identification Number (RCRA ID No.) NA		EPA Identification Number (RCRA ID No.) LAD000777201	
Street Address Cities Service Hwy @ I-10		Street Address Rt 2, John Brannon Rd	
City Sulfur	County Calcasieu	City Carlyss	County Calcasieu
State LA	Zip 70664	State LA	Zip 70663
Is location under control of reporting facility or parent company? ☐ Yes ☒ No		Is location under control of reporting facility or parent company? ☐ Yes ☒ No	
2.3 Off-site location name NA		2.4 Off-site location name NA	
EPA Identification Number (RCRA ID No.)		EPA Identification Number (RCRA ID No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? ☐ Yes ☐ No		Is location under control of reporting facility or parent company? ☐ Yes ☐ No	
2.5 Off-site location name NA		2.6 Off-site location name NA	
EPA Identification Number (RCRA ID No.)		EPA Identification Number (RCRA ID No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? ☐ Yes ☐ No		Is location under control of reporting facility or parent company? ☐ Yes ☐ No	

[] Check if additional pages of Part II are attached. How many? []

EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION

Phosphoric acid
Conoco Lake Charles Refi

1. CHEMICAL IDENTITY (Do not complete this section if you complete Section 2.)

1.1 [Reserved]

1.2 CAS Number (Enter the number exactly as it appears on the 313 list. Enter NA if reporting chemical category.)
007664-38-21.3 Chemical or Chemical Category Name (Enter the name exactly as it appears on the 313 list.)
Phosphoric acid

1.4 Generic Chemical Name (Complete only if Part I, Section 1.1 is checked "Yes." Generic name must be structurally descriptive.)

2. MIXTURE COMPONENT IDENTITY (Do not complete this section if you complete Section 1.)

Generic Chemical Name Provided by Supplier (Limit the name to a maximum of 70 characters (e.g., numbers, letters, spaces, punctuation).)

3. ACTIVITIES AND USES OF THE CHEMICAL AT THE FACILITY (Check all that apply.)

3.1 Manufacture the chemical: a. [] Produce If produce or import: c. [] For on-site use/processing d. [] For sale/distribution
b. [] Import e. [] As a byproduct f. [] As an impurity3.2 Process the chemical: a. [] As a reactant b. [] As a formulation component c. [] As an article component
d. [] Repackaging only

3.3 Otherwise use the chemical: a. [X] As a chemical processing aid b. [] As a manufacturing aid c. [] Ancillary or other use

4. MAXIMUM AMOUNT OF THE CHEMICAL ON-SITE AT ANY TIME DURING THE CALENDAR YEAR

[04] (enter code)

5. RELEASES OF THE CHEMICAL TO THE ENVIRONMENT ON-SITE

You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)

		A. Total Releases (lbs/yr)			B. Basis of Estimate (enter code)	
		A.1 Reporting Ranges			A.2 Enter Estimate	
		0	1-499	500-999		
5.1 Fugitive or non-point air emissions	5.1a	[]	[]	[]	NA	5.1b []
5.2 Stack or point air emissions	5.2a	[]	[]	[]	NA	5.2b []
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.1 [a]	5.3.1a	[]	[]	0	5.3.1b [M]
	5.3.2 []	5.3.2a	[]	[]	NA	5.3.2b []
	5.3.3 []	5.3.3a	[]	[]	NA	5.3.3b []
					C. % From Stormwater	
					5.3.1c NA	
					5.3.2c	
					5.3.3c	
5.4 Underground Injection	5.4a	[]	[]	[]	NA	5.4b []
5.5 Releases to land						
5.5.1 On-site landfill	5.5.1a	[]	[]	[]	NA	5.5.1b []
5.5.2 Land treatment/application farming	5.5.2a	[]	[]	[]	NA	5.5.2b []
5.5.3 Surface impoundment	5.5.3a	[]	[]	[]	NA	5.5.3b []
5.5.4 Other disposal	5.5.4a	[]	[]	[]	NA	5.5.4b []

(Check if additional information is provided on Part IV - Supplemental Information)

EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION (continued)

Phosphoric acid
Conoco Lake Charles Ref.

6. TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS

You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)		A. Total Transfers (lbs/yr)		B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)
		A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate		
6.1.1 Discharge to POTW (enter location number from Part II, Section 1.)	1. []	[] [] []	NA	6.1.1b []	
6.2.1 Other Off-Site Location (enter location number from Part II, Section 2.)	2. [2]	[] [] []	0	6.2.1b [O]	6.2.1c M72
6.2.2 Other Off-Site Location (enter location number from Part II, Section 2.)	2. [1]	[] [] []	0	6.2.2b [O]	6.2.2c M72
6.2.3 Other Off-Site Location (enter location number from Part II, Section 2.)	2. []	[] [] []	NA	6.2.3b []	6.2.3c

[] (Check if additional information is provided on Part IV - Supplemental Information)

7. WASTE TREATMENT METHODS AND EFFICIENCY

[] Not Applicable (NA) - Check if no on-site treatment is applied to any wastestream containing the chemical or chemical category.

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data? Yes No
7.1a [W]	7.1b [C11]	7.1c [1]	7.1d []	7.1e 100.00 %	7.1f [X] []
7.2a [S]	7.2b [C11]	7.2c [1]	7.2d []	7.2e 100.00 %	7.2f [] [X]
7.3a []	7.3b [NA]	7.3c []	7.3d []	7.3e %	7.3f [] []
7.4a []	7.4b [NA]	7.4c []	7.4d []	7.4e %	7.4f [] []
7.5a []	7.5b [NA]	7.5c []	7.5d []	7.5e %	7.5f [] []
7.6a []	7.6b [NA]	7.6c []	7.6d []	7.6e %	7.6f [] []
7.7a []	7.7b [NA]	7.7c []	7.7d []	7.7e %	7.7f [] []
7.8a []	7.8b [NA]	7.8c []	7.8d []	7.8e %	7.8f [] []
7.9a []	7.9b [NA]	7.9c []	7.9d []	7.9e %	7.9f [] []
7.10a []	7.10b [NA]	7.10 []	7.10d []	7.10e %	7.10f [] []

[] (Check if additional information is provided on Part IV - Supplemental Information)

8. POLLUTION PREVENTION: OPTIONAL INFORMATION ON WASTE MINIMIZATION

(Indicate actions taken to reduce the amount of the chemical being released from the facility. See the instructions for coded items and an explanation of what information to include.)

A. Type of Modification (enter code)	B. Quantity of the Chemical in Wastes Prior to Treatment or Disposal			C. Index	D. Reason for Action (enter code)
	Current reporting year (lbs/yr)	Prior year (lbs/yr)	Or Percent Change		
M []			[]+ []-	% []	R []

EPA FORM R PART IV. SUPPLEMENTAL INFORMATION

Use this section if you need additional space for answers to questions in Part III.
 per the lines used sequentially from lines in prior sections (e.g., 5.3.4, 6.1.2, 7.11)

Phosphoric acid
 Conoco Lake Charles Refi

ADDITIONAL INFORMATION ON RELEASES OF THE CHEMICAL TO THE ENVIRONMENT
 (Part III, Section 5.3)

You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Releases (lbs/yr)			B. Basis of Estimate (enter code)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate		
5.3 Discharges to receiving streams or water bodies 5.3.[] [] 5.3.[]a [] [] []				5.3.[]b [] []
(Enter letter code from 5.3.[] [] 5.3.[]a [] [] []				5.3.[]b [] []
Part I Section 3.10 for 5.3.[] [] 5.3.[]a [] [] []				5.3.[]b [] []
stream(s) in the box provided.)				5.3.[]b [] []
				C. % From Stormwater 5.3.[]c [] []
				5.3.[]c [] []
				5.3.[]c [] []

ADDITIONAL INFORMATION ON TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS
 (Part III, Section 6)

You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Transfers (lbs/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
Discharge to POTW 1.[] (enter location number from Part II, Section 1.) 1.[] [] [] []				6.1.[]b [] []	
Other off-site location 6.2.[] (enter location number from Part II, Section 2.) 2.[] [] [] []				6.2.[]b [] []	6.2.[]c [] []
Other off-site location 6.2.[] (enter location number from Part II, Section 2.) 2.[] [] [] []				6.2.[]b [] []	6.2.[]c [] []
Other off-site location 6.2.[] (enter location number from Part II, Section 2.) 2.[] [] [] []				6.2.[]b [] []	6.2.[]c [] []

ADDITIONAL INFORMATION ON WASTE TREATMENT METHODS AND EFFICIENCY (Part III, Section 7)

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data?	
					Yes	No
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e	%	7.[]f [] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e	%	7.[]f [] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e	%	7.[]f [] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e	%	7.[]f [] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e	%	7.[]f [] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e	%	7.[]f [] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e	%	7.[]f [] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e	%	7.[]f [] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e	%	7.[]f [] []

EPA U.S. Environmental Protection Agency
TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM
Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986,
also known as Title III of the Superfund Amendments and Reauthorization Act.

Page 1 of 5

Propylene (Propene)
Conoco Lake Charles Ref.

EPA FORM R PART 1. FACILITY IDENTIFICATION SECTION

- 1.1 Are you claiming the chemical identity on page 3 trade secret? ☐ Yes (Answer question 1.2; Attach substantiation forms.) ☒ No (Do not answer 1.2; Go to question 1.3.) 1.2 If "Yes" in 1.1, is this copy: ☐ Sanitized ☐ Unsanitized 1.3 Reporting Year 1989

2. CERTIFICATION (Read and sign after completing all sections.) I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official
Don R. Unruh Refinery Manager

Signature Date signed
06-20-90

3. Facility Identification

Facility or Establishment Name
Conoco Lake Charles Refinery

Street Address
Old Spanish Trail

City Westlake County Calcasieu

State LA Zip Code 70669

TRI Facility Identification Number
70669 CNCLK OLDSP

WHERE TO SEND COMPLETED FORMS:

1. EPCRA REPORTING CENTER
P.O. BOX 23799
WASHINGTON, DC 20026-3779
ATTN: TOXIC CHEMICAL RELEASE INVENTORY
2. APPROPRIATE STATE OFFICE (See instructions in Appendix G)

- 3.2 This report contains information for (Check one): a. ☒ An entire facility b. ☐ Part of a facility.

3.3 Technical Contact Brandt Butler Telephone Number (318) 491-5599

3.4 Public Contact Don R. Unruh Telephone Number (318) 491-5222

3.5 SIC Code (4 digit) a. 2911 b. NA c. NA d. NA e. NA f. NA

3.6 Latitude Longitude
Degrees Minutes Seconds Degrees Minutes Seconds
030 14 36 093 16 20

3.7 Dun & Bradstreet Number(s) a. 00-842-7692 b. NA

3.8 EPA Identification Number(s) (RCRA I.D. No.) a. IAD990683716 b. NA

3.9 NPDES Permit Number(s) a. LA0003026 b. NA

3.10 Receiving Streams or Water Bodies (enter one name per box) a. Bayou Verdine b. NA
c. NA d. NA
e. NA f. NA

3.11 Underground Injection Well Code (UIC) Identification Number(s) a. NA b. NA

4. PARENT COMPANY INFORMATION

4.1 Name of Parent Company E. I. Du Pont De Nemours 4.2 Parent Company's Dun & Bradstreet Number 00-131-5704

Form R Part II. OFF-SITE LOCATIONS TO WHICH TOXIC CHEMICALS ARE TRANSFERRED IN WASTES

Propylene (Propene)
Conoco Lake Charles Refi

1. PUBLICLY OWNED TREATMENT WORKS (POTWs)

1.1 POTW name NA		1.2 POTW name NA	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip

2. OTHER OFF-SITE LOCATIONS (DO NOT REPORT LOCATIONS TO WHICH WASTES ARE SENT ONLY FOR RECYCLING OR REUSE).

2.1 Off-site location name BFI		2.2 Off-site location name CMI	
EPA Identification Number (RCRA ID No.) NA		EPA Identification Number (RCRA ID No.) LAD000777201	
Street Address Cities Service Hwy @ I-10		Street Address Rt 2, John Brannon Rd	
City Sulfur	County Calcasieu	City Carlyss	County Calcasieu
State LA	Zip 70664	State LA	Zip 70663
Is location under control of reporting facility or parent company? ☐ Yes ☒ No		Is location under control of reporting facility or parent company? ☐ Yes ☒ No	

2.3 Off-site location name NA		2.4 Off-site location name NA	
EPA Identification Number (RCRA ID No.)		EPA Identification Number (RCRA ID No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? ☐ Yes ☐ No		Is location under control of reporting facility or parent company? ☐ Yes ☐ No	

2.5 Off-site location name NA		2.6 Off-site location name NA	
EPA Identification Number (RCRA ID No.)		EPA Identification Number (RCRA ID No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? ☐ Yes ☐ No		Is location under control of reporting facility or parent company? ☐ Yes ☐ No	

☐ Check if additional pages of Part II are attached. How many? ☐

EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION

Propylene (Propene)
Conoco Lake Charles Ref.

1. CHEMICAL IDENTITY (Do not complete this section if you complete Section 2.)

1.1 [Reserved]

1.2 CAS Number (Enter the number exactly as it appears on the 313 list. Enter NA if reporting chemical category.)
000115-07-11.3 Chemical or Chemical Category Name (Enter the name exactly as it appears on the 313 list.)
Propylene (Propene)

1.4 Generic Chemical Name (Complete only if Part I, Section 1.1 is checked "Yes." Generic name must be structurally descriptive.)

2. MIXTURE COMPONENT IDENTITY (Do not complete this section if you complete Section 1.)

Generic Chemical Name Provided by Supplier (Limit the name to a maximum of 70 characters (e.g., numbers, letters, spaces, punctuation).)

3. ACTIVITIES AND USES OF THE CHEMICAL AT THE FACILITY (Check all that apply.)

3.1 Manufacture the chemical: a. ☒ Produce If produce or import: c. ☒ For on-site use/processing d. ☐ For sale/distribution
b. ☐ Import e. ☐ As a byproduct f. ☒ As an impurity3.2 Process the chemical: a. ☒ As a reactant b. ☐ As a formulation component c. ☐ As an article component
d. ☐ Repackaging only3.3 Otherwise use the chemical: a. ☐ As a chemical processing aid b. ☐ As a manufacturing aid c. ☒ Ancillary or other use

4. MAXIMUM AMOUNT OF THE CHEMICAL ON-SITE AT ANY TIME DURING THE CALENDAR YEAR

{08} (enter code)

5. RELEASES OF THE CHEMICAL TO THE ENVIRONMENT ON-SITE

You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)

		A. Total Releases (lbs/yr)			B. Basis of Estimate (enter code)	
		A.1 Reporting Ranges 0 1-499 500-999			A.2 Enter Estimate	
5.1 Fugitive or non-point air emissions	5.1a	☐	☐	☐	110000	5.1b ☐ O
5.2 Stack or point air emissions	5.2a	☐	☐	☐	NA	5.2b ☐
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.1	☐	☐	☐	NA	5.3.1b ☐
	5.3.2	☐	☐	☐	NA	5.3.2b ☐
	5.3.3	☐	☐	☐	NA	5.3.3b ☐
	5.3.3a	☐	☐	☐	NA	5.3.3b ☐
5.4 Underground Injection	5.4a	☐	☐	☐	NA	5.4b ☐
5.5 Releases to land						
5.5.1 On-site landfill	5.5.1a	☐	☐	☐	NA	5.5.1b ☐
5.5.2 Land treatment/application farming	5.5.2a	☐	☐	☐	NA	5.5.2b ☐
5.5.3 Surface impoundment	5.5.3a	☐	☐	☐	NA	5.5.3b ☐
5.5.4 Other disposal	5.5.4a	☐	☐	☐	NA	5.5.4b ☐

C. % From Stormwater
5.3.1c
5.3.2c
5.3.3c

. (Check if additional information is provided on Part IV - Supplemental Information)

SAL 000004373

PA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION (continued)

Propylene (Propene)
Conoco Lake Charles Refi

6. TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS

	A. Total Transfers (lbs/yr)	B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)
You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)			
6.1.1 Discharge to POTW (enter location number from Part II, Section 1.) 1. []	[] [] []	NA	6.1.1b []
6.2.1 Other Off-Site Location (enter location number from Part II, Section 2.) 2. []	[] [] []	NA	6.2.1b [] 6.2.1c
6.2.2 Other Off-Site Location (enter location number from Part II, Section 2.) 2. []	[] [] []	NA	6.2.2b [] 6.2.2c
6.2.3 Other Off-Site Location (enter location number from Part II, Section 2.) 2. []	[] [] []	NA	6.2.3b [] 6.2.3c

[] (Check if additional information is provided on Part IV - Supplemental Information)

7. WASTE TREATMENT METHODS AND EFFICIENCY

[X] Not Applicable (NA) - Check if no on-site treatment is applied to any wastestream containing the chemical or chemical category.

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data? Yes No
7.1a []	7.1b []	7.1c []	7.1d []	7.1e %	7.1f [] []
7.2a []	7.2b []	7.2c []	7.2d []	7.2e %	7.2f [] []
7.3a []	7.3b []	7.3c []	7.3d []	7.3e %	7.3f [] []
7.4a []	7.4b []	7.4c []	7.4d []	7.4e %	7.4f [] []
7.5a []	7.5b []	7.5c []	7.5d []	7.5e %	7.5f [] []
7.6a []	7.6b []	7.6c []	7.6d []	7.6e %	7.6f [] []
7.7a []	7.7b []	7.7c []	7.7d []	7.7e %	7.7f [] []
7.8a []	7.8b []	7.8c []	7.8d []	7.8e %	7.8f [] []
7.9a []	7.9b []	7.9c []	7.9d []	7.9e %	7.9f [] []
7.10a []	7.10b []	7.10 []	7.10d []	7.10e %	7.10f [] []

[] (Check if additional information is provided on Part IV - Supplemental Information)

8. POLLUTION PREVENTION: OPTIONAL INFORMATION ON WASTE MINIMIZATION

(Indicate actions taken to reduce the amount of the chemical being released from the facility. See the instructions for coded items and an explanation of what information to include.)

A. Type of Modification (enter code)	B. Quantity of the Chemical in Wastes Prior to Treatment or Disposal			C. Index	D. Reason for Action (enter code)
	Current reporting year (lbs/yr)	Prior year (lbs/yr)	Or Percent Change		
M []			[]+ []-	% []	R []

EPA FORM R PART IV. SUPPLEMENTAL INFORMATION

Use this section if you need additional space for answers to questions in Part III.
Number the lines used sequentially from lines in prior sections (e.g., 5.3.4, 6.1.2, 7.11)

Propylene (Propene)
Conoco Lake Charles Refi

ADDITIONAL INFORMATION ON RELEASES OF THE CHEMICAL TO THE ENVIRONMENT
(Part III, Section 5.3)

	A. Total Releases (lbs/yr)			B. Basis of Estimate (enter code)	C. % From Stormwater
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)					
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.[] [] []	5.3.[] a [] [] []	[] [] []	5.3.[] b [] []	5.3.[] c [] [] []
	5.3.[] [] []	5.3.[] a [] [] []	[] [] []	5.3.[] b [] []	5.3.[] c [] [] []
	5.3.[] [] []	5.3.[] a [] [] []	[] [] []	5.3.[] b [] []	5.3.[] c [] [] []

ADDITIONAL INFORMATION ON TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS
(Part III, Section 6)

	A. Total Transfers (lbs/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/Disposal (enter code)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)					
1.[] Discharge to POTW (enter location number from Part II, Section 1.)	1.[] [] []	[] [] []	[] [] []	6.1.[] b [] []	
6.2.[] Other off-site location (enter location number from Part II, Section 2.)	2.[] [] []	[] [] []	[] [] []	6.2.[] b [] []	6.2.[] c [] [] []
6.2.[] Other off-site location (enter location number from Part II, Section 2.)	2.[] [] []	[] [] []	[] [] []	6.2.[] b [] []	6.2.[] c [] [] []
6.2.[] Other off-site location (enter location number from Part II, Section 2.)	2.[] [] []	[] [] []	[] [] []	6.2.[] b [] []	6.2.[] c [] [] []

ADDITIONAL INFORMATION ON WASTE TREATMENT METHODS AND EFFICIENCY (Part III, Section 7)

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data?	
					Yes	No
7.[] a [] []	7.[] b [] []	7.[] c [] []	7.[] d [] []	7.[] e [] []	% 7.[] f [] []	[] []
7.[] a [] []	7.[] b [] []	7.[] c [] []	7.[] d [] []	7.[] e [] []	% 7.[] f [] []	[] []
7.[] a [] []	7.[] b [] []	7.[] c [] []	7.[] d [] []	7.[] e [] []	% 7.[] f [] []	[] []
7.[] a [] []	7.[] b [] []	7.[] c [] []	7.[] d [] []	7.[] e [] []	% 7.[] f [] []	[] []
7.[] a [] []	7.[] b [] []	7.[] c [] []	7.[] d [] []	7.[] e [] []	% 7.[] f [] []	[] []
7.[] a [] []	7.[] b [] []	7.[] c [] []	7.[] d [] []	7.[] e [] []	% 7.[] f [] []	[] []
7.[] a [] []	7.[] b [] []	7.[] c [] []	7.[] d [] []	7.[] e [] []	% 7.[] f [] []	[] []
7.[] a [] []	7.[] b [] []	7.[] c [] []	7.[] d [] []	7.[] e [] []	% 7.[] f [] []	[] []
7.[] a [] []	7.[] b [] []	7.[] c [] []	7.[] d [] []	7.[] e [] []	% 7.[] f [] []	[] []

EPA U.S. Environmental Protection Agency
TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM
Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986,
(also known as Title III of the Superfund Amendments and Reauthorization Act.)

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Styrene
Conoco Lake Charles Refi

EPA FORM R PART I. FACILITY IDENTIFICATION SECTION

1.1 Are you claiming the chemical identity on page 3 trade secret? 1.2 If "Yes" in 1.1, is this copy: 1.3 Reporting Year
[] Yes (Answer question 1.2; [X] No (Do not answer 1.2; [] Sanitized [] Unsanitized 1989
Attach substantiation forms.) Go to question 1.3.)

2. CERTIFICATION (Read and sign after completing all sections.) I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official
Don R. Unruh Refinery Manager

Signature Date signed
06-20-90

3. Facility Identification

Facility or Establishment Name
Conoco Lake Charles Refinery
Street Address
Old Spanish Trail
City
Westlake County
Calcasieu
State
LA Zip Code
70669
TRI Facility Identification Number
70669 CNCLK OLDSP

WHERE TO SEND COMPLETED FORMS:

1. EPCRA REPORTING CENTER
P.O. BOX 23799
WASHINGTON, DC 20026-3779
ATTN: TOXIC CHEMICAL RELEASE INVENTORY
2. APPROPRIATE STATE OFFICE (See instructions in Appendix G)

3.2 This report contains information for (Check one): a. [X] An entire facility b. [] Part of a facility.

3.3 Technical Contact Telephone Number
Brandt Butler (318) 491-5599

3.4 Public Contact Telephone Number
Don R. Unruh (318) 491-5222

3.5 SIC Code (4 digit) a. 2911 b. NA c. NA d. NA e. NA f. NA

3.6 Latitude Longitude
Degrees Minutes Seconds Degrees Minutes Seconds
030 14 36 093 16 20

3.7 Dun & Bradstreet Number(s) a. 00-842-7692 b. NA

3.8 EPA Identification Number(s) (RCRA I.D. No.) a. LAD990683716 b. NA

3.9 NPDES Permit Number(s) a. LA0003026 b. NA

3.10 Receiving Streams or Water Bodies (enter one name per box) a. Bayou Verdine b. NA
c. NA d. NA
e. NA f. NA

1 Underground Injection Well Code (UIC) Identification Number(s) a. NA b. NA

4. PARENT COMPANY INFORMATION

4.1 Name of Parent Company E. I. Du Pont De Nemours 4.2 Parent Company's Dun & Bradstreet Number 00-131-5704

EPA Form R Part II. OFF-SITE LOCATIONS TO WHICH TOXIC CHEMICALS ARE TRANSFERRED IN WASTES

Styrene
Conoco Lake Charles Ref

1. PUBLICLY OWNED TREATMENT WORKS (POTWs)

1.1 POTW name NA		1.2 POTW name NA	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip

2. OTHER OFF-SITE LOCATIONS (DO NOT REPORT LOCATIONS TO WHICH WASTES ARE SENT ONLY FOR RECYCLING OR REUSE).

2.1 Off-site location name BFI		2.2 Off-site location name CWMI	
EPA Identification Number (RCRA ID No.) NA		EPA Identification Number (RCRA ID No.) LAD000777201	
Street Address Cities Service Hwy @ I-10		Street Address Rt 2, John Brannon Rd	
City Sulfur	County Calcasieu	City Carlyss	County Calcasieu
State LA	Zip 70664	State LA	Zip 70663
Is location under control of reporting facility or parent company? [] Yes [X] No		Is location under control of reporting facility or parent company? [] Yes [X] No	

2.3 Off-site location name NA		2.4 Off-site location name NA	
EPA Identification Number (RCRA ID No.)		EPA Identification Number (RCRA ID No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? [] Yes [] No		Is location under control of reporting facility or parent company? [] Yes [] No	

2.5 Off-site location name NA		2.6 Off-site location name NA	
EPA Identification Number (RCRA ID No.)		EPA Identification Number (RCRA ID No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? [] Yes [] No		Is location under control of reporting facility or parent company? [] Yes [] No	

[] Check if additional pages of Part II are attached. How many? []

EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION

Styrene
Conoco Lake Charles Refi

1. CHEMICAL IDENTITY (Do not complete this section if you complete Section 2.)

1.1 [Reserved]

1.2 CAS Number (Enter the number exactly as it appears on the 313 list. Enter NA if reporting chemical category.)
000100-42-51.3 Chemical or Chemical Category Name (Enter the name exactly as it appears on the 313 list.)
Styrene

1.4 Generic Chemical Name (Complete only if Part I, Section 1.1 is checked "Yes." Generic name must be structurally descriptive.)

2. MIXTURE COMPONENT IDENTITY (Do not complete this section if you complete Section 1.)

Generic Chemical Name Provided by Supplier (Limit the name to a maximum of 70 characters (e.g., numbers, letters, spaces, punctuation).)

3. ACTIVITIES AND USES OF THE CHEMICAL AT THE FACILITY (Check all that apply.)

3.1 Manufacture the chemical:	a. ☐ Produce	If produce or import:	c. ☐ For on-site use/processing	d. ☐ For sale/distribution
	b. ☐ Import		e. ☐ As a byproduct	f. ☐ As an impurity
3.2 Process the chemical:	a. ☒ As a reactant	b. ☐ As a formulation component	c. ☐ As an article component	
	d. ☐ Repackaging only			
3.3 Otherwise use the chemical:	a. ☐ As a chemical processing aid	b. ☐ As a manufacturing aid	c. ☐ Ancillary or other use	

4. MAXIMUM AMOUNT OF THE CHEMICAL ON-SITE AT ANY TIME DURING THE CALENDAR YEAR

[05] (enter code)

5. RELEASES OF THE CHEMICAL TO THE ENVIRONMENT ON-SITE

You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)

	A. Total Releases (lbs/yr)				B. Basis of Estimate (enter code)	C. % From Stormwater
	A.1 Reporting Ranges	A.2 Enter Estimate				
	0	1-499	500-999			
5.1 Fugitive or non-point air emissions	5.1a	☐	☐	☐	1100	5.1b ☐
5.2 Stack or point air emissions	5.2a	☐	☐	☐	0	5.2b ☐
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.1 ☐ 5.3.2 ☐ 5.3.3 ☐	5.3.1a ☐	5.3.2a ☐	5.3.3a ☐	17 NA NA	5.3.1b ☐ 5.3.1c NA 5.3.2b ☐ 5.3.2c 5.3.3b ☐ 5.3.3c
5.4 Underground Injection	5.4a	☐	☐	☐	NA	5.4b ☐
5.5 Releases to land						
5.5.1 On-site landfill	5.5.1a	☐	☐	☐	NA	5.5.1b ☐
5.5.2 Land treatment/application farming	5.5.2a	☐	☐	☐	NA	5.5.2b ☐
5.5.3 Surface impoundment	5.5.3a	☐	☐	☐	NA	5.5.3b ☐
5.5.4 Other disposal	5.5.4a	☐	☐	☐	NA	5.5.4b ☐

] (Check if additional information is provided on Part IV - Supplemental Information)

SAL 000004375

EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION (continued)

Styrene
Conoco Lake Charles Ref

6. TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS

You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)		A. Total Transfers (lbs/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)
		A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
6.1.1 Discharge to POTW (enter location number from Part II, Section 1.)	1. []	[] [] []	NA		6.1.1b []	
6.2.1 Other Off-Site Location (enter location number from Part II, Section 2.)	2. [2]	[] [] []	0		6.2.1b [O]	6.2.1c M72
6.2.2 Other Off-Site Location (enter location number from Part II, Section 2.)	2. [1]	[] [] []	0		6.2.2b [O]	6.2.2c M72
6.2.3 Other Off-Site Location (enter location number from Part II, Section 2.)	2. []	[] [] []	NA		6.2.3b []	6.2.3c

[] (Check if additional information is provided on Part IV - Supplemental Information)

7. WASTE TREATMENT METHODS AND EFFICIENCY

[] Not Applicable (NA) - Check if no on-site treatment is applied to any wastestream containing the chemical or chemical category.

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data? Yes No
7.1a [W]	7.1b [B11]	7.1c [4]	7.1d []	7.1e 90.00 %	7.1f [] [X]
7.2a []	7.2b [NA]	7.2c []	7.2d []	7.2e %	7.2f [] []
7.3a []	7.3b [NA]	7.3c []	7.3d []	7.3e %	7.3f [] []
7.4a []	7.4b [NA]	7.4c []	7.4d []	7.4e %	7.4f [] []
7.5a []	7.5b [NA]	7.5c []	7.5d []	7.5e %	7.5f [] []
7.6a []	7.6b [NA]	7.6c []	7.6d []	7.6e %	7.6f [] []
7.7a []	7.7b [NA]	7.7c []	7.7d []	7.7e %	7.7f [] []
7.8a []	7.8b [NA]	7.8c []	7.8d []	7.8e %	7.8f [] []
7.9a []	7.9b [NA]	7.9c []	7.9d []	7.9e %	7.9f [] []
7.10a []	7.10b [NA]	7.10 []	7.10d []	7.10e %	7.10f [] []

[] (Check if additional information is provided on Part IV - Supplemental Information)

8. POLLUTION PREVENTION: OPTIONAL INFORMATION ON WASTE MINIMIZATION

(Indicate actions taken to reduce the amount of the chemical being released from the facility. See the instructions for coded items and an explanation of what information to include.)

A. Type of Modification (enter code)	B. Quantity of the Chemical in Wastes Prior to Treatment or Disposal			C. Index	D. Reason for Action (enter code)
	Current reporting year (lbs/yr)	Prior year (lbs/yr)	Or Percent Change		
M []			[]+ []-	% []	R []

EPA FORM R PART IV. SUPPLEMENTAL INFORMATION

Use this section if you need additional space for answers to questions in Part III.
Number the lines used sequentially from lines in prior sections (e.g., 5.3.4, 6.1.2, 7.11)

Styrene
Conoco Lake Charles Refi

ADDITIONAL INFORMATION ON RELEASES OF THE CHEMICAL TO THE ENVIRONMENT
(Part III, Section 5.3)

You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Releases (lbs/yr)			B. Basis of Estimate (enter code)	
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.[] [] []	5.3.[]a [] [] []	5.3.[]b [] [] []	5.3.[]b [] [] []	C. % From Stormwater 5.3.[]c [] [] []
	5.3.[] [] []	5.3.[]a [] [] []	5.3.[]b [] [] []	5.3.[]b [] [] []	5.3.[]c [] [] []
	5.3.[] [] []	5.3.[]a [] [] []	5.3.[]b [] [] []	5.3.[]b [] [] []	5.3.[]c [] [] []

ADDITIONAL INFORMATION ON TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS
(Part III, Section 6)

You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Transfers (lbs/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
1.[] Discharge to POTW (enter location number from Part II, Section 1.)	1.[] [] []	[] [] []		6.1.[]b [] []	
6.2.[] Other off-site location (enter location number from Part II, Section 2.)	2.[] [] []	[] [] []		6.2.[]b [] []	6.2.[]c [] [] []
6.2.[] Other off-site location (enter location number from Part II, Section 2.)	2.[] [] []	[] [] []		6.2.[]b [] []	6.2.[]c [] [] []
6.2.[] Other off-site location (enter location number from Part II, Section 2.)	2.[] [] []	[] [] []		6.2.[]b [] []	6.2.[]c [] [] []

ADDITIONAL INFORMATION ON WASTE TREATMENT METHODS AND EFFICIENCY (Part III, Section 7)

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data?	
					Yes	No
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e %	7.[]f [] []	[]

Sulfuric acid
Conoco Lake Charles Ref

EPA FORM R PART I. FACILITY IDENTIFICATION SECTION

1.1 Are you claiming the chemical identity on page 3 trade secret? ☐ Yes (Answer question 1.2; Attach substantiation forms.) ☒ No (Do not answer 1.2; Go to question 1.3.) 1.2 If "Yes" in 1.1, is this copy: ☐ Sanitized ☐ Unsanitized 1.3 Reporting Year 1989

2. CERTIFICATION (Read and sign after completing all sections.) I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official
Don R. Unruh Refinery Manager

Signature Date signed
06-20-90

3. Facility Identification

3.1 Facility or Establishment Name
Conoco Lake Charles Refinery
Street Address
Old Spanish Trail
City
Westlake County
Calcasieu
State
LA Zip Code
70669
TRI Facility Identification Number
70669 CNCLK OLDSP

WHERE TO SEND COMPLETED FORMS:

1. EPCRA REPORTING CENTER
P.O. BOX 23799
WASHINGTON, DC 20026-3779
ATTN: TOXIC CHEMICAL RELEASE INVENTORY
2. APPROPRIATE STATE OFFICE (See instructions in Appendix G)

3.2 This report contains information for (Check one): a. ☒ An entire facility b. ☐ Part of a facility.

3.3 Technical Contact
Brandt Butler Telephone Number
(318) 491-5599

3.4 Public Contact
Don R. Unruh Telephone Number
(318) 491-5222

3.5 SIC Code (4 digit) a. 2911 b. NA c. NA d. NA e. NA f. NA

3.6 Latitude Longitude
Degrees Minutes Seconds Degrees Minutes Seconds
030 14 36 093 16 20

3.7 Dun & Bradstreet Number(s) a. 00-842-7692 b. NA

3.8 EPA Identification Number(s) (RCRA I.D. No.) a. LAD990683716 b. NA

3.9 NPDES Permit Number(s) a. LA0003026 b. NA

3.10 Receiving Streams or Water Bodies (enter one name per box) a. Bayou Verdine b. NA
c. NA d. NA
e. NA f. NA

3.11 Underground Injection Well Code (UIC) Identification Number(s) a. NA b. NA

4. PARENT COMPANY INFORMATION

4.1 Name of Parent Company
E. I. Du Pont De Nemours 4.2 Parent Company's Dun & Bradstreet Number
00-131-5704

PA Form R Part II. OFF-SITE LOCATIONS TO WHICH TOXIC CHEMICALS ARE TRANSFERRED IN WASTES

Sulfuric acid
Conoco Lake Charles Refi

1. PUBLICLY OWNED TREATMENT WORKS (POTWs)

1.1 POTW name
NA1.2 POTW name
NA

Street Address

Street Address

City County

City County

State Zip

State Zip

2. OTHER OFF-SITE LOCATIONS (DO NOT REPORT LOCATIONS TO WHICH WASTES ARE SENT ONLY FOR RECYCLING OR REUSE).

2.1 Off-site location name
BFI2.2 Off-site location name
CWMIEPA Identification Number (RCRA ID No.)
NAEPA Identification Number (RCRA ID No.)
IAD000777201Street Address
Cities Service Hwy @ I-10Street Address
Rt 2, John Brannon RdCity County
Sulfur CalcasieuCity County
Carlyss CalcasieuState Zip
LA 70664State Zip
LA 70663Is location under control of reporting facility or parent company?
☐ Yes ☒ NoIs location under control of reporting facility or parent company?
☐ Yes ☒ No2.3 Off-site location name
NA2.4 Off-site location name
NA

EPA Identification Number (RCRA ID No.)

EPA Identification Number (RCRA ID No.)

Street Address

Street Address

City County

City County

State Zip

State Zip

Is location under control of reporting facility or parent company?
☐ Yes ☐ NoIs location under control of reporting facility or parent company?
☐ Yes ☐ No2.5 Off-site location name
NA2.6 Off-site location name
NA

EPA Identification Number (RCRA ID No.)

EPA Identification Number (RCRA ID No.)

Street Address

Street Address

City County

City County

State Zip

State Zip

Is location under control of reporting facility or parent company?
☐ Yes ☐ NoIs location under control of reporting facility or parent company?
☐ Yes ☐ No☐ Check if additional pages of Part II are attached. How many? ☐

EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION

Sulfuric acid
Conoco Lake Charles Ref.

1. CHEMICAL IDENTITY (Do not complete this section if you complete Section 2.)

1.1 [Reserved]

1.2 CAS Number (Enter the number exactly as it appears on the 313 list. Enter NA if reporting chemical category.)
007664-93-91.3 Chemical or Chemical Category Name (Enter the name exactly as it appears on the 313 list.)
Sulfuric acid

1.4 Generic Chemical Name (Complete only if Part I, Section 1.1 is checked "Yes." Generic name must be structurally descriptive.)

2. MIXTURE COMPONENT IDENTITY (Do not complete this section if you complete Section 1.)

Generic Chemical Name Provided by Supplier (Limit the name to a maximum of 70 characters (e.g., numbers, letters, spaces, punctuation).)

3. ACTIVITIES AND USES OF THE CHEMICAL AT THE FACILITY (Check all that apply.)

3.1 Manufacture the chemical:	a. ☒ Produce	If produce or import:	c. ☒ For on-site use/processing	d. ☐ For sale/distribution
	b. ☐ Import		e. ☐ As a byproduct	f. ☒ As an impurity
3.2 Process the chemical:	a. ☐ As a reactant	b. ☐ As a formulation component	c. ☐ As an article component	
	d. ☐ Repackaging only			
3.3 Otherwise use the chemical:	a. ☒ As a chemical processing aid	b. ☐ As a manufacturing aid	c. ☒ Ancillary or other use	

4. MAXIMUM AMOUNT OF THE CHEMICAL ON-SITE AT ANY TIME DURING THE CALENDAR YEAR

[07] (enter code)

5. RELEASES OF THE CHEMICAL TO THE ENVIRONMENT ON-SITE

		A. Total Releases (lbs/yr)				B. Basis of Estimate (enter code)
		A.1 Reporting Ranges			A.2 Enter Estimate	
		0	1-499	500-999		
5.1 Fugitive or non-point air emissions	5.1a	☐	☒	☐		5.1b ☐
5.2 Stack or point air emissions	5.2a	☐	☐	☐	480	5.2b ☐
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.1 [a] 5.3.2 [] 5.3.3 []	5.3.1a 5.3.2a 5.3.3a	☐ ☐ ☐	☐ ☐ ☐	0 NA NA	5.3.1b [M] 5.3.2b [] 5.3.3b []
5.4 Underground Injection	5.4a	☐	☐	☐	NA	5.4b []
5.5 Releases to land						
5.5.1 On-site landfill	5.5.1a	☐	☐	☐	NA	5.5.1b []
5.5.2 Land treatment/application farming	5.5.2a	☐	☐	☐	NA	5.5.2b []
5.5.3 Surface impoundment	5.5.3a	☐	☐	☐	NA	5.5.3b []
5.5.4 Other disposal	5.5.4a	☐	☐	☐	NA	5.5.4b []

 C. % From Stormwater
 5.3.1c NA
 5.3.2c
 5.3.3c

[] (Check if additional information is provided on Part IV - Supplemental Information)

EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION (continued)

Sulfuric acid
Conoco Lake Charles Refi

6. TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS

You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)		A. Total Transfers (lbs/yr)		B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)
		A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate		
6.1.1 Discharge to POTW (enter location number from Part II, Section 1.)	1. []	[] [] []	NA	6.1.1b []	
6.2.1 Other Off-Site Location (enter location number from Part II, Section 2.)	2. []	[] [] []	NA	6.2.1b []	6.2.1c
6.2.2 Other Off-Site Location (enter location number from Part II, Section 2.)	2. []	[] [] []	NA	6.2.2b []	6.2.2c
6.2.3 Other Off-Site Location (enter location number from Part II, Section 2.)	2. []	[] [] []	NA	6.2.3b []	6.2.3c

[] (Check if additional information is provided on Part IV - Supplemental Information)

7. WASTE TREATMENT METHODS AND EFFICIENCY

[] Not Applicable (NA) - Check if no on-site treatment is applied to any wastestream containing the chemical or chemical category.

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data? Yes No
7.1a [W]	7.1b [C11]	7.1c [1]	7.1d []	7.1e 100.00 %	7.1f [X] []
7.2a []	7.2b [NA]	7.2c []	7.2d []	7.2e %	7.2f [] []
7.3a []	7.3b [NA]	7.3c []	7.3d []	7.3e %	7.3f [] []
7.4a []	7.4b [NA]	7.4c []	7.4d []	7.4e %	7.4f [] []
7.5a []	7.5b [NA]	7.5c []	7.5d []	7.5e %	7.5f [] []
7.6a []	7.6b [NA]	7.6c []	7.6d []	7.6e %	7.6f [] []
7.7a []	7.7b [NA]	7.7c []	7.7d []	7.7e %	7.7f [] []
7.8a []	7.8b [NA]	7.8c []	7.8d []	7.8e %	7.8f [] []
7.9a []	7.9b [NA]	7.9c []	7.9d []	7.9e %	7.9f [] []
7.10a []	7.10b [NA]	7.10 []	7.10d []	7.10e %	7.10f [] []

[] (Check if additional information is provided on Part IV - Supplemental Information)

8. POLLUTION PREVENTION: OPTIONAL INFORMATION ON WASTE MINIMIZATION

(Indicate actions taken to reduce the amount of the chemical being released from the facility. See the instructions for coded items and an explanation of what information to include.)

A. Type of Modification (enter code)	B. Quantity of the Chemical in Wastes Prior to Treatment or Disposal			C. Index	D. Reason for Action (enter code)
	Current reporting year (lbs/yr)	Prior year (lbs/yr)	Or Percent Change		
M []			[]+ []-	% []	R []

EPA FORM R PART IV. SUPPLEMENTAL INFORMATION

Use this section if you need additional space for answers to questions in Part III.

Number the lines used sequentially from lines in prior sections (e.g., 5.3.4, 6.1.2, 7.11)

Sulfuric acid
Conoco Lake Charles RefADDITIONAL INFORMATION ON RELEASES OF THE CHEMICAL TO THE ENVIRONMENT
(Part III, Section 5.3)You may report releases of less than
1,000 lbs by checking ranges under A.1.
(Do not use both A.1 and A.2)

	A. Total Releases (lbs/yr)			B. Basis of Estimate (enter code)	C. % From Stormwater
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.[] [] []	5.3.[] 1a	[] [] []	5.3.[] 1b []	5.3.[] 1c
	5.3.[] [] []	5.3.[] 1a	[] [] []	5.3.[] 1b []	5.3.[] 1c
	5.3.[] [] []	5.3.[] 1a	[] [] []	5.3.[] 1b []	5.3.[] 1c

ADDITIONAL INFORMATION ON TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS
(Part III, Section 6)You may report transfers of less than
1,000 lbs by checking ranges under A.1.
(Do not use both A.1 and A.2)

	A. Total Transfers (lbs/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/Disposal (enter code)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
1.1 Discharge to POTW (enter location number from Part II, Section 1.)	1.[] [] []	[] [] []		6.1.[] 1b []	
6.2.1 Other off-site location (enter location number from Part II, Section 2.)	2.[] [] []	[] [] []		6.2.[] 1b []	6.2.[] 1c
6.2.2 Other off-site location (enter location number from Part II, Section 2.)	2.[] [] []	[] [] []		6.2.[] 1b []	6.2.[] 1c
6.2.3 Other off-site location (enter location number from Part II, Section 2.)	2.[] [] []	[] [] []		6.2.[] 1b []	6.2.[] 1c

ADDITIONAL INFORMATION ON WASTE TREATMENT METHODS AND EFFICIENCY (Part III, Section 7)

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data?	
					Yes	No
7.[] 1a [] []	7.[] 1b [] []	7.[] 1c [] []	7.[] 1d [] []	7.[] 1e %	7.[] 1f [] []	[]
7.[] 1a [] []	7.[] 1b [] []	7.[] 1c [] []	7.[] 1d [] []	7.[] 1e %	7.[] 1f [] []	[]
7.[] 1a [] []	7.[] 1b [] []	7.[] 1c [] []	7.[] 1d [] []	7.[] 1e %	7.[] 1f [] []	[]
7.[] 1a [] []	7.[] 1b [] []	7.[] 1c [] []	7.[] 1d [] []	7.[] 1e %	7.[] 1f [] []	[]
7.[] 1a [] []	7.[] 1b [] []	7.[] 1c [] []	7.[] 1d [] []	7.[] 1e %	7.[] 1f [] []	[]
7.[] 1a [] []	7.[] 1b [] []	7.[] 1c [] []	7.[] 1d [] []	7.[] 1e %	7.[] 1f [] []	[]
7.[] 1a [] []	7.[] 1b [] []	7.[] 1c [] []	7.[] 1d [] []	7.[] 1e %	7.[] 1f [] []	[]
7.[] 1a [] []	7.[] 1b [] []	7.[] 1c [] []	7.[] 1d [] []	7.[] 1e %	7.[] 1f [] []	[]
7.[] 1a [] []	7.[] 1b [] []	7.[] 1c [] []	7.[] 1d [] []	7.[] 1e %	7.[] 1f [] []	[]

EPA U.S. Environmental Protection Agency
TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM
Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986,
so known as Title III of the Superfund Amendments and Reauthorization Act.

Page 1 of 5

Toluene
Conoco Lake Charles Refi

EPA FORM R PART 1. FACILITY IDENTIFICATION SECTION

1.1 Are you claiming the chemical identity on page 3 trade secret? ☐ Yes (Answer question 1.2; Attach substantiation forms.) ☒ No (Do not answer 1.2; Go to question 1.3.) 1.2 If "Yes" in 1.1, is this copy: ☐ Sanitized ☐ Unsanitized 1.3 Reporting Year 1989

2. CERTIFICATION (Read and sign after completing all sections.) I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official
Don R. Unruh Refinery Manager

Signature Date signed
06-20-90

3. Facility Identification

WHERE TO SEND COMPLETED FORMS:

1. EPCRA REPORTING CENTER
P.O. BOX 23799
WASHINGTON, DC 20026-3779
ATTN: TOXIC CHEMICAL RELEASE INVENTORY

2. APPROPRIATE STATE OFFICE (See instructions in Appendix G)

Facility or Establishment Name
Conoco Lake Charles Refinery
Street Address
Old Spanish Trail
City
Westlake County
Calcasieu
State
LA Zip Code
70669
TRI Facility Identification Number
70669 CNCLK OLDSP

3.2 This report contains information for (Check one): a. ☒ An entire facility b. ☐ Part of a facility.

3.3 Technical Contact Telephone Number
Brandt Butler (318) 491-5599

3.4 Public Contact Telephone Number
Don R. Unruh (318) 491-5222

3.5 SIC Code (4 digit) a. 2911 b. NA c. NA d. NA e. NA f. NA

3.6 Latitude Longitude
Degrees Minutes Seconds Degrees Minutes Seconds
030 14 36 093 16 20

3.7 Dun & Bradstreet Number(s) a. 00-842-7692 b. NA

3.8 EPA Identification Number(s) (RCRA I.D. No.) a. LAD990683716 b. NA

3.9 NPDES Permit Number(s) a. LA0003026 b. NA

3.10 Receiving Streams or Water Bodies (enter one name per box) a. Bayou Verdine b. NA
c. NA d. NA
e. NA f. NA

Underground Injection Well Code (UIC) Identification Number(s) a. NA b. NA

4. PARENT COMPANY INFORMATION

4.1 Name of Parent Company E. I. Du Pont De Nemours 4.2 Parent Company's Dun & Bradstreet Number 00-131-5704

EPA Form R Part II. OFF-SITE LOCATIONS TO WHICH TOXIC CHEMICALS ARE TRANSFERRED IN WASTES

Toluene
Conoco Lake Charles Ref

1. PUBLICLY OWNED TREATMENT WORKS (POTWs)

1.1 POTW name NA		1.2 POTW name NA	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip

2. OTHER OFF-SITE LOCATIONS (DO NOT REPORT LOCATIONS TO WHICH WASTES ARE SENT ONLY FOR RECYCLING OR REUSE).

2.1 Off-site location name BFI		2.2 Off-site location name CWMI	
EPA Identification Number (RCRA ID No.) NA		EPA Identification Number (RCRA ID No.) LAD000777201	
Street Address Cities Service Hwy @ I-10		Street Address Rt 2, John Brannon Rd	
City Sulfur	County Calcasieu	City Carlyss	County Calcasieu
State LA	Zip 70664	State LA	Zip 70663
Is location under control of reporting facility or parent company? [] Yes [X] No		Is location under control of reporting facility or parent company? [] Yes [X] No	
2.3 Off-site location name NA		2.4 Off-site location name NA	
EPA Identification Number (RCRA ID No.)		EPA Identification Number (RCRA ID No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? [] Yes [] No		Is location under control of reporting facility or parent company? [] Yes [] No	
2.5 Off-site location name NA		2.6 Off-site location name NA	
EPA Identification Number (RCRA ID No.)		EPA Identification Number (RCRA ID No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? [] Yes [] No		Is location under control of reporting facility or parent company? [] Yes [] No	
[] Check if additional pages of Part II are attached. How many? []			

EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION

Toluene
Conoco Lake Charles Refi

1. CHEMICAL IDENTITY (Do not complete this section if you complete Section 2.)

1.1 [Reserved]

1.2 CAS Number (Enter the number exactly as it appears on the 313 list. Enter NA if reporting chemical category.)
000108-88-31.3 Chemical or Chemical Category Name (Enter the name exactly as it appears on the 313 list.)
Toluene

1.4 Generic Chemical Name (Complete only if Part I, Section 1.1 is checked "Yes." Generic name must be structurally descriptive.)

2. MIXTURE COMPONENT IDENTITY (Do not complete this section if you complete Section 1.)

Generic Chemical Name Provided by Supplier (Limit the name to a maximum of 70 characters (e.g., numbers, letters, spaces, punctuation).)

3. ACTIVITIES AND USES OF THE CHEMICAL AT THE FACILITY (Check all that apply.)

3.1 Manufacture the chemical: a. ☒ Produce If produce or import: c. ☒ For on-site use/processing d. ☐ For sale/distribution
b. ☐ Import e. ☐ As a byproduct f. ☒ As an impurity3.2 Process the chemical: a. ☒ As a reactant b. ☐ As a formulation component c. ☐ As an article component
d. ☐ Repackaging only3.3 Otherwise use the chemical: a. ☐ As a chemical processing aid b. ☐ As a manufacturing aid c. ☐ Ancillary or other use

4. MAXIMUM AMOUNT OF THE CHEMICAL ON-SITE AT ANY TIME DURING THE CALENDAR YEAR

(08) (enter code)

5. RELEASES OF THE CHEMICAL TO THE ENVIRONMENT ON-SITE

You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)

A. Total Releases (lbs/yr)				B. Basis of Estimate (enter code)	
A.1 Reporting Ranges				A.2 Enter Estimate	
0	1-499	500-999			
5.1 Fugitive or non-point air emissions	5.1a	☐	☐	37000	5.1b ☐
5.2 Stack or point air emissions	5.2a	☐	☐	7000	5.2b ☐
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.1 ☐	5.3.1a ☐	☐	NA 34	5.3.1b ☐
	5.3.2 ☐	5.3.2a ☐	☐	NA	5.3.2b ☐
	5.3.3 ☐	5.3.3a ☐	☐	NA	5.3.3b ☐
					5.3.3c
5.4 Underground Injection	5.4a	☐	☐	NA	5.4b ☐
5.5 Releases to land					
5.5.1 On-site landfill	5.5.1a	☐	☐	NA	5.5.1b ☐
5.5.2 Land treatment/application farming	5.5.2a	☐	☐	NA	5.5.2b ☐
5.5.3 Surface impoundment	5.5.3a	☐	☐	NA	5.5.3b ☐
5.5.4 Other disposal	5.5.4a	☐	☐	NA	5.5.4b ☐

C. % From Stormwater
5.3.1c NA
5.3.2c
5.3.3c

(Check if additional information is provided on Part IV - Supplemental Information)

EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION (continued)

Toluene
Conoco Lake Charles Ref

6. TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS

You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)		A. Total Transfers (lbs/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)
		A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
6.1.1 Discharge to POTW (enter location number from Part II, Section 1.)	1. []	[] [] []	NA		6.1.1b []	
6.2.1 Other Off-Site Location (enter location number from Part II, Section 2.)	2. [2]	[] [] []	170		6.2.1b [O]	6.2.1c M72
6.2.2 Other Off-Site Location (enter location number from Part II, Section 2.)	2. [1]	[] [] []	210		6.2.2b [O]	6.2.2c M72
6.2.3 Other Off-Site Location (enter location number from Part II, Section 2.)	2. []	[] [] []	NA		6.2.3b []	6.2.3c

[] (Check if additional information is provided on Part IV - Supplemental Information)

7. WASTE TREATMENT METHODS AND EFFICIENCY

[] Not Applicable (NA) - Check if no on-site treatment is applied to any wastestream containing the chemical or chemical category.

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data? Yes No
7.1a [W]	7.1b [B11]	7.1c [4]	7.1d []	7.1e 90.00 %	7.1f [] [X]
7.2a [A]	7.2b [A07]	7.2c [2]	7.2d []	7.2e 88.00 %	7.2f [X] []
7.3a []	7.3b [NA]	7.3c []	7.3d []	7.3e %	7.3f [] []
7.4a []	7.4b [NA]	7.4c []	7.4d []	7.4e %	7.4f [] []
7.5a []	7.5b [NA]	7.5c []	7.5d []	7.5e %	7.5f [] []
7.6a []	7.6b [NA]	7.6c []	7.6d []	7.6e %	7.6f [] []
7.7a []	7.7b [NA]	7.7c []	7.7d []	7.7e %	7.7f [] []
7.8a []	7.8b [NA]	7.8c []	7.8d []	7.8e %	7.8f [] []
7.9a []	7.9b [NA]	7.9c []	7.9d []	7.9e %	7.9f [] []
7.10a []	7.10b [NA]	7.10 []	7.10d []	7.10e %	7.10f [] []

[] (Check if additional information is provided on Part IV - Supplemental Information)

8. POLLUTION PREVENTION: OPTIONAL INFORMATION ON WASTE MINIMIZATION

(Indicate actions taken to reduce the amount of the chemical being released from the facility. See the instructions for coded items and an explanation of what information to include.)

A. Type of Modification (enter code)	B. Quantity of the Chemical in Wastes Prior to Treatment or Disposal			C. Index	D. Reason for Action (enter code)
	Current reporting year (lbs/yr)	Prior year (lbs/yr)	Or Percent Change		
M []			[]+ []-	% []	R []

EPA FORM R PART IV. SUPPLEMENTAL INFORMATION

Use this section if you need additional space for answers to questions in Part III.

Number the lines used sequentially from lines in prior sections (e.g., 5.3.4, 6.1.2, 7.11)

Toluene
Conoco Lake Charles RefiADDITIONAL INFORMATION ON RELEASES OF THE CHEMICAL TO THE ENVIRONMENT
(Part III, Section 5.3)

You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Releases (lbs/yr)			B. Basis of Estimate (enter code)	C. % From Stormwater
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.[] [] []	5.3.[]a [] [] []		5.3.[]b [] []	5.3.[]c [] [] []

ADDITIONAL INFORMATION ON TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS
(Part III, Section 6)

You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Transfers (lbs/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/Disposal (enter code)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
1. [] (enter location number from Part II, Section 1.)	1.[] [] []			6.1.[]b [] []	
6.2.[] (enter location number from Part II, Section 2.)	2.[] [] []			6.2.[]b [] []	6.2.[]c [] [] []
6.2.[] (enter location number from Part II, Section 2.)	2.[] [] []			6.2.[]b [] []	6.2.[]c [] [] []
6.2.[] (enter location number from Part II, Section 2.)	2.[] [] []			6.2.[]b [] []	6.2.[]c [] [] []

ADDITIONAL INFORMATION ON WASTE TREATMENT METHODS AND EFFICIENCY (Part III, Section 7)

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data?	
					Yes	No
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e % [] []	7.[]f [] []	[] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e % [] []	7.[]f [] []	[] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e % [] []	7.[]f [] []	[] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e % [] []	7.[]f [] []	[] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e % [] []	7.[]f [] []	[] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e % [] []	7.[]f [] []	[] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e % [] []	7.[]f [] []	[] []
7.[]a [] []	7.[]b [] []	7.[]c [] []	7.[]d [] []	7.[]e % [] []	7.[]f [] []	[] []

EPA U.S. Environmental Protection Agency
TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM
Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986,
also known as Title III of the Superfund Amendments and Reauthorization Act.

Page 1 of 5

1,2,4-Trimethylbenzene
Conoco Lake Charles Ref.

EPA FORM R PART I. FACILITY IDENTIFICATION SECTION

1.1 Are you claiming the chemical identity on page 3 trade secret? ☐ Yes (Answer question 1.2; Attach substantiation forms.) ☒ No (Do not answer 1.2; Go to question 1.3.) 1.2 If "Yes" in 1.1, is this copy: ☐ Sanitized ☐ Unsanitized 1.3 Reporting Year 1989

2. CERTIFICATION (Read and sign after completing all sections.) I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official
Don R. Unruh Refinery Manager

Signature Date signed
06-20-90

3. Facility Identification

Facility or Establishment Name
Conoco Lake Charles Refinery
Street Address
Old Spanish Trail
City
Westlake County
Calcasieu
State
LA Zip Code
70669
TRI Facility Identification Number
70669 CNCLK OLDSP

WHERE TO SEND COMPLETED FORMS:

1. EPCRA REPORTING CENTER
P.O. BOX 23799
WASHINGTON, DC 20026-3779
ATTN: TOXIC CHEMICAL RELEASE INVENTORY
2. APPROPRIATE STATE OFFICE (See instructions in Appendix G)

3.2 This report contains information for (Check one): a. ☒ An entire facility b. ☐ Part of a facility.

3.3 Technical Contact Brandt Butler Telephone Number (318) 491-5599

3.4 Public Contact Don R. Unruh Telephone Number (318) 491-5222

3.5 SIC Code (4 digit) a. 2911 b. NA c. NA d. NA e. NA f. NA

3.6 Latitude Longitude
Degrees Minutes Seconds Degrees Minutes Seconds
030 14 36 093 16 20

3.7 Dun & Bradstreet Number(s) a. 00-842-7692 b. NA

3.8 EPA Identification Number(s) (RCRA I.D. No.) a. LAD990683716 b. NA

3.9 NPDES Permit Number(s) a. LA0003026 b. NA

3.10 Receiving Streams or Water Bodies (enter one name per box) a. Bayou Verdine b. NA
c. NA d. NA
e. NA f. NA

3.11 Underground Injection Well Code (UIC) Identification Number(s) a. NA b. NA

4. PARENT COMPANY INFORMATION

4.1 Name of Parent Company E. I. Du Pont De Nemours 4.2 Parent Company's Dun & Bradstreet Number 00-131-5704

PA Form R Part II. OFF-SITE LOCATIONS TO WHICH TOXIC CHEMICALS ARE TRANSFERRED IN WASTES

1,2,4-Trimethylbenzene
Conoco Lake Charles Refi

1. PUBLICLY OWNED TREATMENT WORKS (POTWs)

1.1 POTW name
NA1.2 POTW name
NA

Street Address

Street Address

City

County

City

County

State

Zip

State

Zip

2. OTHER OFF-SITE LOCATIONS (DO NOT REPORT LOCATIONS TO WHICH WASTES ARE SENT ONLY FOR RECYCLING OR REUSE).

2.1 Off-site location name
BFI2.2 Off-site location name
CMMIEPA Identification Number (RCRA ID No.)
NAEPA Identification Number (RCRA ID No.)
LAD000777201

Street Address

Cities Service Hwy @ I-10

Street Address

Rt 2, John Brannon Rd

City

Sulfur

County

Calcasieu

City

Carlyss

County

Calcasieu

State

LA

Zip

70664

State

LA

Zip

70663

Is location under control of reporting facility or parent company?
☐ Yes ☒ NoIs location under control of reporting facility or parent company?
☐ Yes ☒ No2.3 Off-site location name
NA2.4 Off-site location name
NA

EPA Identification Number (RCRA ID No.)

EPA Identification Number (RCRA ID No.)

Street Address

Street Address

City

County

City

County

State

Zip

State

Zip

Is location under control of reporting facility or parent company?
☐ Yes ☐ NoIs location under control of reporting facility or parent company?
☐ Yes ☐ No2.5 Off-site location name
NA2.6 Off-site location name
NA

EPA Identification Number (RCRA ID No.)

EPA Identification Number (RCRA ID No.)

Street Address

Street Address

City

County

City

County

State

Zip

State

Zip

Is location under control of reporting facility or parent company?
☐ Yes ☐ NoIs location under control of reporting facility or parent company?
☐ Yes ☐ No☐ Check if additional pages of Part II are attached. How many? ☐

SAL 00000000

EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION

1,2,4-Trimethylbenzene
Conoco Lake Charles Ref'

1. CHEMICAL IDENTITY (Do not complete this section if you complete Section 2.)

1.1 [Reserved]

1.2 CAS Number (Enter the number exactly as it appears on the 313 list. Enter NA if reporting chemical category.)
000095-63-61.3 Chemical or Chemical Category Name (Enter the name exactly as it appears on the 313 list.)
1,2,4-Trimethylbenzene

1.4 Generic Chemical Name (Complete only if Part I, Section 1.1 is checked "Yes." Generic name must be structurally descriptive.)

2. MIXTURE COMPONENT IDENTITY (Do not complete this section if you complete Section 1.)

Generic Chemical Name Provided by Supplier (Limit the name to a maximum of 70 characters (e.g., numbers, letters, spaces, punctuation).)

3. ACTIVITIES AND USES OF THE CHEMICAL AT THE FACILITY (Check all that apply.)

3.1 Manufacture the chemical: a. ☒ Produce If produce or import: c. ☒ For on-site use/processing d. ☐ For sale/distribution
b. ☐ Import e. ☐ As a byproduct f. ☒ As an impurity3.2 Process the chemical: a. ☒ As a reactant b. ☐ As a formulation component c. ☐ As an article component
d. ☐ Repackaging only3.3 Otherwise use the chemical: a. ☐ As a chemical processing aid b. ☐ As a manufacturing aid c. ☐ Ancillary or other use

4. MAXIMUM AMOUNT OF THE CHEMICAL ON-SITE AT ANY TIME DURING THE CALENDAR YEAR

[07] (enter code)

5. RELEASES OF THE CHEMICAL TO THE ENVIRONMENT ON-SITE

You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)

		A. Total Releases (lbs/yr)			B. Basis of Estimate (enter code)			
		A.1 Reporting Ranges 0 1-499 500-999			A.2 Enter Estimate			
5.1 Fugitive or non-point air emissions	5.1a	[]	[]	[]	8000	5.1b	[O]	
5.2 Stack or point air emissions	5.2a	[]	[]	[]	150	5.2b	[O]	
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.1 [a] 5.3.2 [] 5.3.3 []	5.3.1a 5.3.2a 5.3.3a	[] [] []	[] [] []	17 NA NA	5.3.1b [O] 5.3.2b [] 5.3.3b []	C. % From Stormwater 5.3.1c NA 5.3.2c 5.3.3c	
5.4 Underground Injection	5.4a	[]	[]	[]	NA	5.4b	[]	
5.5 Releases to land								
5.5.1 On-site landfill	5.5.1a	[]	[]	[]	NA	5.5.1b	[]	
5.5.2 Land treatment/application farming	5.5.2a	[]	[]	[]	NA	5.5.2b	[]	
5.5.3 Surface impoundment	5.5.3a	[]	[]	[]	NA	5.5.3b	[]	
5.5.4 Other disposal	5.5.4a	[]	[]	[]	NA	5.5.4b	[]	

1 (Check if additional information is provided on Part IV - Supplemental Information)

SAL 000004393

EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION (continued)

1,2,4-Trimethylbenzene
Conoco Lake Charles Refi.

5. TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS

You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)		A. Total Transfers (lbs/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)
		A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
5.1.1 Discharge to POTW (enter location number from Part II, Section 1.)	1. []	[] [] []	NA		6.1.1b []	
6.2.1 Other Off-Site Location (enter location number from Part II, Section 2.)	2. [2]	[] [] []	50		6.2.1b [O]	6.2.1c M72
6.2.2 Other Off-Site Location (enter location number from Part II, Section 2.)	2. [1]	[] [] []	62		6.2.2b [O]	6.2.2c M72
6.2.3 Other Off-Site Location (enter location number from Part II, Section 2.)	2. []	[] [] []	NA		6.2.3b []	6.2.3c

[] (Check if additional information is provided on Part IV - Supplemental Information)

7. WASTE TREATMENT METHODS AND EFFICIENCY

[] Not Applicable (NA) - Check if no on-site treatment is applied to any wastestream containing the chemical or chemical category.

A. Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data?	
					Yes	No
7.1a [W]	7.1b [B11]	7.1c [4]	7.1d []	7.1e 95.00 %	7.1f []	[X]
7.2a [A]	7.2b [A07]	7.2c [2]	7.2d []	7.2e 88.00 %	7.2f [X]	[]
7.3a []	7.3b [NA]	7.3c []	7.3d []	7.3e %	7.3f []	[]
7.4a []	7.4b [NA]	7.4c []	7.4d []	7.4e %	7.4f []	[]
7.5a []	7.5b [NA]	7.5c []	7.5d []	7.5e %	7.5f []	[]
7.6a []	7.6b [NA]	7.6c []	7.6d []	7.6e %	7.6f []	[]
7.7a []	7.7b [NA]	7.7c []	7.7d []	7.7e %	7.7f []	[]
7.8a []	7.8b [NA]	7.8c []	7.8d []	7.8e %	7.8f []	[]
7.9a []	7.9b [NA]	7.9c []	7.9d []	7.9e %	7.9f []	[]
7.10a []	7.10b [NA]	7.10 []	7.10d []	7.10e %	7.10f []	[]

[] (Check if additional information is provided on Part IV - Supplemental Information)

8. POLLUTION PREVENTION: OPTIONAL INFORMATION ON WASTE MINIMIZATION

(Indicate actions taken to reduce the amount of the chemical being released from the facility. See the instructions for coded items and an explanation of what information to include.)

A. Type of Modification (enter code)	B. Quantity of the Chemical in Wastes Prior to Treatment or Disposal			C. Index	D. Reason for Action (enter code)
	Current reporting year (lbs/yr)	Prior year (lbs/yr)	Or Percent Change		
M []			[] + [] -	% []	R []

EPA FORM R PART IV. SUPPLEMENTAL INFORMATION

Use this section if you need additional space for answers to questions in Part III.
Number the lines used sequentially from lines in prior sections (e.g., 5.3.4, 6.1.2, 7.11)

1,2,4-Trimethylbenzene
Conoco Lake Charles Refi

ADDITIONAL INFORMATION ON RELEASES OF THE CHEMICAL TO THE ENVIRONMENT
(Part III, Section 5.3)

You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Releases (lbs/yr)			B. Basis of Estimate (enter code)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate		
5.3 Discharges to receiving streams or water bodies 5.3.[] [] 5.3.[] a [] [] []				5.3.[] b []
(Enter letter code from 5.3.[] [] 5.3.[] a [] [] []				5.3.[] b []
Part I Section 3.10 for stream(s) in the box provided.) 5.3.[] [] 5.3.[] a [] [] []				5.3.[] b []
				C. % From Stormwater 5.3.[] c
				5.3.[] c
				5.3.[] c

ADDITIONAL INFORMATION ON TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS
(Part III, Section 6)

You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)	A. Total Transfers (lbs/yr)			B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)
	A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
Discharge to POTW 1.[] (enter location number from Part II, Section 1.) 1.[]				6.1.[] b []	
Other off-site location 6.2.[] (enter location number from Part II, Section 2.) 2.[]				6.2.[] b []	6.2.[] c
Other off-site location 6.2.[] (enter location number from Part II, Section 2.) 2.[]				6.2.[] b []	6.2.[] c
Other off-site location 6.2.[] (enter location number from Part II, Section 2.) 2.[]				6.2.[] b []	6.2.[] c

ADDITIONAL INFORMATION ON WASTE TREATMENT METHODS AND EFFICIENCY (Part III, Section 7)

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data? Yes No
7.[] a []	7.[] b []	7.[] c []	7.[] d []	7.[] e %	7.[] f [] []
7.[] a []	7.[] b []	7.[] c []	7.[] d []	7.[] e %	7.[] f [] []
7.[] a []	7.[] b []	7.[] c []	7.[] d []	7.[] e %	7.[] f [] []
7.[] a []	7.[] b []	7.[] c []	7.[] d []	7.[] e %	7.[] f [] []
7.[] a []	7.[] b []	7.[] c []	7.[] d []	7.[] e %	7.[] f [] []
7.[] a []	7.[] b []	7.[] c []	7.[] d []	7.[] e %	7.[] f [] []
7.[] a []	7.[] b []	7.[] c []	7.[] d []	7.[] e %	7.[] f [] []
7.[] a []	7.[] b []	7.[] c []	7.[] d []	7.[] e %	7.[] f [] []
7.[] a []	7.[] b []	7.[] c []	7.[] d []	7.[] e %	7.[] f [] []

EPA U.S. Environmental Protection Agency
TOXIC CHEMICAL RELEASE INVENTORY REPORTING FORM
Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986,
also known as Title III of the Superfund Amendments and Reauthorization Act.

Page 1 of 5

Xylene (mixed isomers)
Conoco Lake Charles Refi

EPA FORM R PART 1. FACILITY IDENTIFICATION SECTION

1.1 Are you claiming the chemical identity on page 3 trade secret? ☐ Yes (Answer question 1.2; Attach substantiation forms.) ☒ No (Do not answer 1.2; Go to question 1.3.) 1.2 If "Yes" in 1.1, is this copy: ☐ Sanitized ☐ Unsanitized 1.3 Reporting Year 1989

2. CERTIFICATION (Read and sign after completing all sections.) I hereby certify that I have reviewed the attached documents and that, to the best of my knowledge and belief, the submitted information is true and complete and that the amounts and values in this report are accurate based on reasonable estimates using data available to the preparers of this report.

Name and official title of owner/operator or senior management official
Don R. Unruh Refinery Manager

Signature Date signed
06-20-90

3. Facility Identification

3.1 Facility or Establishment Name
Conoco Lake Charles Refinery
Street Address
Old Spanish Trail
City
Westlake County
Calcasieu
State
LA Zip Code
70669
TRI Facility Identification Number
70669 CNCLK OLDSP

WHERE TO SEND COMPLETED FORMS:

1. EPCRA REPORTING CENTER
P.O. BOX 23799
WASHINGTON, DC 20026-3779
ATTN: TOXIC CHEMICAL RELEASE INVENTORY
2. APPROPRIATE STATE OFFICE (See instructions in Appendix G)

3.2 This report contains information for (Check one): a. ☒ An entire facility b. ☐ Part of a facility.

3.3 Technical Contact
Brandt Butler Telephone Number
(318) 491-5599

3.4 Public Contact
Don R. Unruh Telephone Number
(318) 491-5222

3.5 SIC Code (4 digit) a. 2911 b. NA c. NA d. NA e. NA f. NA

3.6 Latitude Longitude
Degrees Minutes Seconds Degrees Minutes Seconds
030 14 36 093 16 20

3.7 Dun & Bradstreet Number(s) a. 00-842-7692 b. NA

3.8 EPA Identification Number(s) (RCRA I.D. No.) a. IAD990683716 b. NA

3.9 NPDES Permit Number(s) a. LA0003026 b. NA

3.10 Receiving Streams or Water Bodies (enter one name per box) a. Bayou Verdine b. NA
c. NA d. NA
e. NA f. NA

Underground Injection Well Code (UIC) Identification Number(s) a. NA b. NA

4. PARENT COMPANY INFORMATION

4.1 Name of Parent Company E. I. Du Pont De Nemours 4.2 Parent Company's Dun & Bradstreet Number 00-131-5704

EPA Form R Part II. OFF-SITE LOCATIONS TO WHICH TOXIC CHEMICALS ARE TRANSFERRED IN WASTES

Xylene (mixed isomers)
Conoco Lake Charles Re

1. PUBLICLY OWNED TREATMENT WORKS (POTWs)

1.1 POTW name NA		1.2 POTW name NA	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip

2. OTHER OFF-SITE LOCATIONS (DO NOT REPORT LOCATIONS TO WHICH WASTES ARE SENT ONLY FOR RECYCLING OR REUSE).

2.1 Off-site location name BFI		2.2 Off-site location name CWMI	
EPA Identification Number (RCRA ID No.) NA		EPA Identification Number (RCRA ID No.) LAD000777201	
Street Address Cities Service Hwy @ I-10		Street Address Rt 2, John Brannon Rd	
City Sulfur	County Calcasieu	City Carlyss	County Calcasieu
State LA	Zip 70664	State LA	Zip 70663
Is location under control of reporting facility or parent company? [] Yes [X] No		Is location under control of reporting facility or parent company? [] Yes [X] No	
2.3 Off-site location name NA		2.4 Off-site location name NA	
EPA Identification Number (RCRA ID No.)		EPA Identification Number (RCRA ID No.)	
Street Address		Street Address	
City	County	City	County
State	Zip	State	Zip
Is location under control of reporting facility or parent company? [] Yes [] No		Is location under control of reporting facility or parent company? [] Yes [] No	
2.5 Off-site location name NA		2.6 Off-site location name NA	
EPA Identification Number (RCRA ID No.)		EPA Identification Number (RCRA ID No.)	
Street Address		Street Address	
City	County	City	County
ate	Zip	State	Zip
Is location under control of reporting facility or parent company? [] Yes [] No		Is location under control of reporting facility or parent company? [] Yes [] No	

[] Check if additional pages of Part II are attached. How many? []

FORM R PART III. CHEMICAL-SPECIFIC INFORMATION

Xylene (mixed isomers)
Conoco Lake Charles Refi

1. CHEMICAL IDENTITY (Do not complete this section if you complete Section 2.)

1.1 [Reserved]

1.2 CAS Number (Enter the number exactly as it appears on the 313 list. Enter NA if reporting chemical category.)
001330-20-71.3 Chemical or Chemical Category Name (Enter the name exactly as it appears on the 313 list.)
Xylene (mixed isomers)

1.4 Generic Chemical Name (Complete only if Part I, Section 1.1 is checked "Yes." Generic name must be structurally descriptive.)

2. MIXTURE COMPONENT IDENTITY (Do not complete this section if you complete Section 1.)

Generic Chemical Name Provided by Supplier (Limit the name to a maximum of 70 characters (e.g., numbers, letters, spaces, punctuation).)

3. ACTIVITIES AND USES OF THE CHEMICAL AT THE FACILITY (Check all that apply.)

- 3.1 Manufacture the chemical: a. ☒ Produce If produce or import: c. ☒ For on-site use/processing d. ☐ For sale/distribution
b. ☐ Import e. ☐ As a byproduct f. ☒ As an impurity
- 3.2 Process the chemical: a. ☒ As a reactant b. ☐ As a formulation component c. ☐ As an article component
d. ☐ Repackaging only
- 3 Otherwise use the chemical: a. ☐ As a chemical processing aid b. ☐ As a manufacturing aid c. ☐ Ancillary or other use

4. MAXIMUM AMOUNT OF THE CHEMICAL ON-SITE AT ANY TIME DURING THE CALENDAR YEAR

{08} (enter code)

5. RELEASES OF THE CHEMICAL TO THE ENVIRONMENT ON-SITE

		A. Total Releases (lbs/yr)			B. Basis of Estimate (enter code)
		A.1 Reporting Ranges		A.2 Enter Estimate	
		0	1-499	500-999	
You may report releases of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)					
5.1 Fugitive or non-point air emissions	5.1a	☐	☐	☐	37000 5.1b ☐
5.2 Stack or point air emissions	5.2a	☐	☐	☐	2500 5.2b ☐
5.3 Discharges to receiving streams or water bodies (Enter letter code from Part I Section 3.10 for stream(s) in the box provided.)	5.3.1 ☐ 5.3.2 ☐ 5.3.3 ☐	5.3.1a ☐ 5.3.2a ☐ 5.3.3a ☐	☐ ☐ ☐	☐ ☐ ☐	17 5.3.1b ☐ 5.3.2b ☐ 5.3.3b ☐
					C. % From Stormwater 5.3.1c NA 5.3.2c 5.3.3c
5.4 Underground Injection	5.4a	☐	☐	☐	NA 5.4b ☐
5.5 Releases to land					
5.5.1 On-site landfill	5.5.1a	☐	☐	☐	NA 5.5.1b ☐
5.5.2 Land treatment/application farming	5.5.2a	☐	☐	☐	NA 5.5.2b ☐
5.5.3 Surface impoundment	5.5.3a	☐	☐	☐	NA 5.5.3b ☐
5.5.4 Other disposal	5.5.4a	☐	☐	☐	NA 5.5.4b ☐

(Check if additional information is provided on Part IV - Supplemental Information)

EPA FORM R PART III. CHEMICAL-SPECIFIC INFORMATION (continued)

Xylene (mixed isomers)
Conoco Lake Charles Refi

6. TRANSFERS OF THE CHEMICAL IN WASTE TO OFF-SITE LOCATIONS

You may report transfers of less than 1,000 lbs by checking ranges under A.1. (Do not use both A.1 and A.2)		A. Total Transfers (lbs/yr)		B. Basis of Estimate (enter code)	C. Type of Treatment/ Disposal (enter code)	
		A.1 Reporting Ranges 0 1-499 500-999	A.2 Enter Estimate			
6.1.1 Discharge to POTW (enter location number from Part II, Section 1.)	1. []	[] [] []	NA	6.1.1b []		
6.2.1 Other Off-Site Location (enter location number from Part II, Section 2.)	2. [2]	[] [] []	450	6.2.1b [O]	6.2.1c	M72
6.2.2 Other Off-Site Location (enter location number from Part II, Section 2.)	2. [1]	[] [] []	530	6.2.2b [O]	6.2.2c	M72
6.2.3 Other Off-Site Location (enter location number from Part II, Section 2.)	2. []	[] [] []	NA	6.2.3b []	6.2.3c	

[] (Check if additional information is provided on Part IV - Supplemental Information)

7. WASTE TREATMENT METHODS AND EFFICIENCY

[] Not Applicable (NA) - Check if no on-site treatment is applied to any wastestream containing the chemical or chemical category.

A. General Wastestream (enter code)	B. Treatment Method (enter code)	C. Range of Influent Concentration (enter code)	D. Sequential Treatment? (Check if applicable)	E. Treatment Efficiency Estimate	F. Based on Operating Data?	
					Yes	No
7.1a [W]	7.1b [B11]	7.1c [4]	7.1d []	7.1e 95.00 %	7.1f []	[X]
7.2a [A]	7.2b [A07]	7.2c [2]	7.2d []	7.2e 88.00 %	7.2f [X]	[]
7.3a []	7.3b [NA]	7.3c []	7.3d []	7.3e %	7.3f []	[]
7.4a []	7.4b [NA]	7.4c []	7.4d []	7.4e %	7.4f []	[]
7.5a []	7.5b [NA]	7.5c []	7.5d []	7.5e %	7.5f []	[]
7.6a []	7.6b [NA]	7.6c []	7.6d []	7.6e %	7.6f []	[]
7.7a []	7.7b [NA]	7.7c []	7.7d []	7.7e %	7.7f []	[]
7.8a []	7.8b [NA]	7.8c []	7.8d []	7.8e %	7.8f []	[]
7.9a []	7.9b [NA]	7.9c []	7.9d []	7.9e %	7.9f []	[]
7.10a []	7.10b [NA]	7.10 []	7.10d []	7.10e %	7.10f []	[]

[] (Check if additional information is provided on Part IV - Supplemental Information)

8. POLLUTION PREVENTION: OPTIONAL INFORMATION ON WASTE MINIMIZATION

(Indicate actions taken to reduce the amount of the chemical being released from the facility. See the instructions for coded items and an explanation of what information to include.)

A. Type of Modification (enter code)	B. Quantity of the Chemical in Wastes Prior to Treatment or Disposal		C. Index	D. Reason for Action (enter code)
	Current reporting year (lbs/yr)	Prior year (lbs/yr)	Or Percent Change	
M []			[]+ []- %	R []

CALCULATIONS

**SARA TITLE III, SECTION 313
1989 TOXIC CHEMICAL RELEASE INVENTORY
LAKE CHARLES REFINERY**

Calculations

The attached release inventory gives a unit by unit comparison of emissions in 1988 and 1989. For specifics on the 1988 releases, consult the 1988 SARA 313 documentation. The calculated releases for 1989 are attached or found in the following sections:

Storage Tanks - Appendix H

Wastewater Treatment - Appendix G

API, DAF, IAF Emissions - Appendix G

Loading Loss - Appendix J

Process Equipment Fugitives - Appendix I

Process Drains - Appendix I

Cooling Tower - Appendix I

Solid Waste Release - Appendix F

Spreadsheets are referenced for many of the calculations. These spreadsheets are available from Bruce Schroer, PED, Ponca City.

SARA 313 RELEASE INVENTORY
LAKE CHARLES REFINERY

COMPONENT = AMMONIA

	1988 RELEASE (LB/YR.)	1989 RELEASE (LB/YR.)
AIR POINT RELEASES	NA	NA
AIR NON-POINT RELEASES		
CTU (#2, #3) Inhibitor	410	410
Wastewater Trtmt	1752	1217
-----	-----	-----
Total Non-point Release	2162	1627
TOTAL AIR RELEASE	2162	1627
WATER RELEASE	3117	2172
LAND RELEASE		
On-Site (Landfarm)	NA	NA
Off-Site (BFI)	NA	NA
Off-Site (CWMI)	NA	NA
-----	-----	-----
Total Off-Site Release	0	0

SAL 000004402

SARA 313 RELEASE INVENTORY
LAKE CHARLES REFINERY

COMPONENT = BENZENE

	1988 RELEASE (LB/YR.)	1989 RELEASE (LB/YR.)
AIR POINT RELEASES		
Storage Tanks	16951	8605
AIR NON-POINT RELEASES		
Loading Loss	1181	1826
Process Equipment Fugitives		
#3 CTU & Vac	876	740
#2 CTU	789	720
#4 HDS	461	380
#3 CRU & HDS	1738	1240
#1 Coker	114	40
#2 Coker	22	20
Gas Recovery Plant	200	120
#6 HDS	190	100
FCC Feed Prep	118	40
FCC	394	320
#2 CRU & HDS	987	1500
Thermal Cracker	75	120
PBC	1806	300
Molex	72	80
SHAD/VHAD	2541	3660
Tank Farm	5059	4360
Process Drains	276	1792
Separators		
API	116	112
DAF	4	4
IAF	2	2
Cooling Water	125	125
Wastewater Trtmt	187	163
Landfarm Waste Trtmt	351	NA
-----	-----	-----
Total Non-point Release	17684	17764
TOTAL AIR RELEASE	34635	26369
WATER RELEASE	39	34
LAND RELEASE		
On-Site (Landfarm)	0	NA
Off-Site (BFI)	NA	62
Off-Site (CWMI)	NA	50
-----	-----	-----
Total Off-Site Release	0	112

SARA 313 RELEASE INVENTORY
LAKE CHARLES REFINERY

COMPONENT = 1,3-BUTADIENE

	1988 RELEASE (LB/YR.)	1989 RELEASE (LB/YR.)
AIR POINT RELEASES	NA	NA
AIR NON-POINT RELEASES		
Fuel Gas Fugitives	149	200
Process Equipment Fugitives		
#1 Coker	38	40
#2 Coker	7	20
Gas Recovery Plant	138	120
FCC	286	320
Cryo	90	100
Cat Poly	123	80
Thermal Cracker	7	20
PBC	230	40
Alky	125	120
Acid Plant	2	0
Tank Farm	147	160
-----	-----	-----
Total Non-point Release	1342	1220
TOTAL AIR RELEASE	1342	1220
WATER RELEASE	NA	NA
LAND RELEASE		
On-Site (Landfarm)	NA	NA
Off-Site (BFI)	NA	NA
Off-Site (CWMI)	NA	NA
-----	-----	-----
Total Off-Site Release	0	0

SAL 000004404

SARA 313 RELEASE INVENTORY
LAKE CHARLES REFINERY

COMPONENT = CHLORINE

	1988 RELEASE (LB/YR.)	1989 RELEASE (LB/YR.)
AIR POINT RELEASES	NA	NA
AIR NON-POINT RELEASES		
Cool. Tower, Boil. Injct	2000	2000
WATER RELEASE	NA	NA
LAND RELEASE		
On-Site (Landfarm)	NA	NA
Off-Site (BFI)	NA	NA
Off-Site (CWMI)	NA	NA
-----	-----	-----
Total Off-Site Release	0	0

SAL 000004405

SARA 313 RELEASE INVENTORY
LAKE CHARLES REFINERY

COMPONENT = CUMENE

	1988 RELEASE (LB/YR.)	1989 RELEASE (LB/YR.)
AIR POINT RELEASES		
Storage Tanks	565	655
AIR NON-POINT RELEASES		
Loading Loss	69	144
Process Equipment Fugitives		
#3 CRU & HDS	1442	1320
#1 Coker	380	380
#2 Coker	73	180
Gas Recovery Plant	307	200
FCC Feed Prep	168	42
FCC	1826	2080
#2 CRU & HDS	555	1060
Thermal Cracker	75	120
Tank Farm	6324	6687
Process Drains	4	31
API Separators	2	2
Cooling Water	47	47
Wastewater Trtmt	296	129
Landfarm Waste Trtmt	1053	NA
-----	-----	-----
Total Non-point Release	12621	12422
TOTAL AIR RELEASE	13186	13077
WATER RELEASE	39	17
LAND RELEASE		
On-Site (Landfarm)	0	NA
Off-Site (BFI)	NA	62
Off-Site (CWMI)	NA	50
-----	-----	-----
Total Off-Site Release	0	112

SARA 313 RELEASE INVENTORY
LAKE CHARLES REFINERY

COMPONENT = CYCLOHEXANE

	1988 RELEASE (LB/YR.)	1989 RELEASE (LB/YR.)
AIR POINT RELEASES		
Storage Tanks	8476	2857
AIR NON-POINT RELEASES		
Process Equipment Fugitives		
#3 CTU & Vac	1184	1520
#2 CTU	1048	1080
#4 HDS	651	640
#3 CRU & HDS	424	380
#1 Coker	380	380
#2 Coker	73	180
Gas Recovery Plant	307	200
#6 HDS	246	140
FCC	358	400
#2 CRU & HDS	588	1140
Thermal Cracker	75	120
PBC	3191	580
Molex	96	140
Tank Farm	980	1040
Process Drains	516	3303
Separators		
API	208	208
DAF	8	8
IAF	4	4
Cooling Water	219	219
Wastewater Trtmt	78	34
Landfarm Waste Trtmt	1259	NA
-----	-----	-----
Total Non-point Release	11893	11716
TOTAL AIR RELEASE		
	20369	14573
WATER RELEASE		
	39	17
LAND RELEASE		
On-Site (Landfarm)	0	NA
Off-Site (BFI)	NA	62
Off-Site (CWMI)	NA	50
-----	-----	-----
Total Off-Site Release	0	112

SAL 000004407

SARA 313 RELEASE INVENTORY
LAKE CHARLES REFINERY

COMPONENT = ETHYLENE

	1988 RELEASE (LB/YR.)	1989 RELEASE (LB/YR.)
AIR POINT RELEASES	NA	NA
AIR NON-POINT RELEASES		
Fuel Gas Fugitives	1786	2300
Process Equipment Fugitives		
#1 Coker	380	380
#2 Coker	73	180
Gas Recovery Plant	154	100
FCC	5728	6500
Cryo	2691	2580
Thermal Cracker	75	120
Acid Plant	202	420
Tank Farm	2941	1860
-----	-----	-----
Total Non-point Release	14030	14440
TOTAL AIR RELEASE	14030	14440
WATER RELEASE	NA	NA
LAND RELEASE		
On-Site (Landfarm)	NA	NA
Off-Site (BFI)	NA	NA
Off-Site (CWMI)	NA	NA
-----	-----	-----
Total Off-Site Release	0	0

SARA 313 RELEASE INVENTORY
LAKE CHARLES REFINERY

COMPONENT = ETHYLBENZENE

	1988 RELEASE (LB/YR.)	1989 RELEASE (LB/YR.)
AIR POINT RELEASES		
Storage Tanks	1613	635
AIR NON-POINT RELEASES		
Loading Loss	125	138
Process Equipment Fugitives		
#3 CTU & Vac	165	220
#2 CTU	146	160
#4 HDS	90	80
#3 CRU & HDS	1166	1220
FCC Feed Prep	106	20
FCC	1074	0
#2 CRU & HDS	449	980
PBC	461	0
SHAD/VHAD	290	420
Tank Farm	4461	3785
Process Drains	20	106
API Separator	8	8
Cooling Water	74	74
Wastewater Trtmt	187	81
Landfarm Waste Trtmt	217	NA
-----	-----	-----
Total Non-point Release	9039	7292
TOTAL AIR RELEASE	10652	7927
WATER RELEASE	39	17
LAND RELEASE		
On-Site (Landfarm)	0	NA
Off-Site (BFI)	NA	113
Off-Site (CWMI)	NA	96
-----	-----	-----
Total Off-Site Release	0	209

SAL 000004409

SARA 313 RELEASE INVENTORY
LAKE CHARLES REFINERY

COMPONENT = HYDROCHLORIC ACID

	1988 RELEASE (LB/YR.)	1989 RELEASE (LB/YR.)
AIR POINT RELEASES	16	30
AIR NON-POINT RELEASES		
Demin. Resin Regen.	614	614
TOTAL AIR RELEASE	630	644
WATER RELEASE	0	0
LAND RELEASE		
On-Site (Landfarm)	NA	NA
Off-Site (BFI)	NA	NA
Off-Site (CWMI)	NA	NA
-----	-----	-----
Total Off-Site Release	0	0

SARA 313 RELEASE INVENTORY
LAKE CHARLES REFINERY

COMPONENT = LEAD COMPOUNDS

	1988 RELEASE (LB/YR.)	1989 RELEASE (LB/YR.)
AIR POINT RELEASES	0	0
AIR NON-POINT RELEASES		
Leaded Gaso. Addn.	403	403
TOTAL AIR RELEASE	403	403
WATER RELEASE	0	0
LAND RELEASE		
On-Site (Landfarm)	NA	NA
Off-Site (BFI)	NA	NA
Off-Site (CWMI)	NA	NA
-----	-----	-----
Total Off-Site Release	0	0

SARA 313 RELEASE INVENTORY
LAKE CHARLES REFINERY

COMPONENT = MANGANESE COMPOUNDS

	1988 RELEASE (LB/YR.)	1989 RELEASE (LB/YR.)
AIR POINT RELEASES	0	0
AIR NON-POINT RELEASES		
Leaded Gaso. Addn.	250	250
TOTAL AIR RELEASE	250	250
WATER RELEASE	0	0
LAND RELEASE		
On-Site (Landfarm)	NA	NA
Off-Site (BFI)	NA	NA
Off-Site (CWMI)	NA	NA
-----	-----	-----
Total Off-Site Release	0	0

SAL 000004412

SARA 313 RELEASE INVENTORY
LAKE CHARLES REFINERY

COMPONENT = METHANOL

	1988 RELEASE (LB/YR.)	1989 RELEASE (LB/YR.)
AIR POINT RELEASES		
Storage Tanks	760	1210
AIR NON-POINT RELEASES		
Process Equipment Fugitives		
Cryo Refrig Deicing	72	72
Fuel Oil Blending(AO23)	482	482
Propane Blending	964	964
-----	-----	-----
Total Non-point Release	1518	1518
TOTAL AIR RELEASE	2278	2728
WATER RELEASE	0	0
LAND RELEASE		
On-Site (Landfarm)	0	NA
Off-Site (BFI)	NA	0
Off-Site (CWMI)	NA	0
-----	-----	-----
Total Off-Site Release	0	0

SAL 000004413

SARA 313 RELEASE INVENTORY
LAKE CHARLES REFINERY

COMPONENT = MOLYBDENUM TRIOXIDE

	1988 RELEASE (LB/YR.)	1989 RELEASE (LB/YR.)
AIR POINT RELEASES	NA	NA
AIR NON-POINT RELEASES		
HDS Catalyst Handling	120	120
WATER RELEASE	NA	NA
LAND RELEASE		
On-Site (Landfarm)	NA	NA
Off-Site (BFI)	21000	NA
Off-Site (CWMI)	NA	NA
-----	-----	-----
Total Off-Site Release	21000	0

SAL 000004414

SARA 313 RELEASE INVENTORY
LAKE CHARLES REFINERY

COMPONENT = NAPHTHALENE

	1988 RELEASE (LB/YR.)	1989 RELEASE (LB/YR.)
AIR POINT RELEASES		
Storage Tanks	1238	3187
AIR NON-POINT RELEASES		
Loading Loss	3	9
Process Equipment Fugitives		
#3 CTU & Vac	987	1280
#2 CTU	874	920
#4 HDS	542	520
#5 HDS	117	220
#6 HDS	142	80
#7 HDS	56	160
FCC Feed Prep	118	60
#1 HDS	208	NA
PBC	384	160
Molex	55	80
SHAD/VHAD	436	620
Tank Farm	2941	3120
Cooling Water	59	59
Landfarm Waste Trtmt	269	NA
-----	-----	-----
Total Non-point Release	7191	7288
TOTAL AIR RELEASE	8429	10475
WATER RELEASE	47	34
LAND RELEASE		
On-Site (Landfarm)	0	NA
Off-Site (BFI)	NA	1218
Off-Site (CWMI)	NA	980
-----	-----	-----
Total Off-Site Release	0	2198

SAL 000004415

SARA 313 RELEASE INVENTORY
LAKE CHARLES REFINERY

COMPONENT = PHOSPHORIC ACID

	1988 RELEASE (LB/YR.)	1989 RELEASE (LB/YR.)
AIR POINT RELEASES	NA	NA
AIR NON-POINT RELEASES	NA	NA
WATER RELEASE	0	0
LAND RELEASE		
On-Site (Landfarm)	NA	NA
Off-Site (BFI)	0	0
Off-Site (CWMI)	NA	0
-----	-----	-----
Total Off-Site Release	0	0

SAL 000004416

SARA 313 RELEASE INVENTORY
LAKE CHARLES REFINERY

COMPONENT = PROPYLENE

	1988 RELEASE (LB/YR.)	1989 RELEASE (LB/YR.)
AIR POINT RELEASES	NA	NA
AIR NON-POINT RELEASES		
Fuel Gas Fugitives	2480	3200
Process Equipment Fugitives		
#1 Coker	2663	2680
#2 Coker	511	1300
Gas Recovery Plant	17380	11760
FCC	30430	34560
Cryo	8611	8260
Cat Poly	27934	17060
Thermal Cracker	528	880
PBC	28061	10680
Alky	15198	13900
Acid Plant	560	1160
Tank Farm	1471	2600
-----	-----	-----
Total Non-point Release	135827	108040
TOTAL AIR RELEASE	135827	108040
WATER RELEASE	NA	NA
LAND RELEASE		
On-Site (Landfarm)	NA	NA
Off-Site (BFI)	NA	NA
Off-Site (CWMI)	NA	NA
-----	-----	-----
Total Off-Site Release	0	0

SAL 000004417

SARA 313 RELEASE INVENTORY
LAKE CHARLES REFINERY

COMPONENT = STYRENE

	1988 RELEASE (LB/YR.)	1989 RELEASE (LB/YR.)
AIR POINT RELEASES		
Storage Tanks	27	0
AIR NON-POINT RELEASES		
Process Equipment Fugitives		
SHAD/VHAD	726	1040
Process Drains	1	6
Cooling Tower	6	6
Wastewater Trtmt	90	39
Landfarm-Waste Trtmt	56	NA
-----	-----	-----
Total Non-point Release	879	1091
TOTAL AIR RELEASE	906	1091
WATER RELEASE	39	17
LAND RELEASE		
On-Site (Landfarm)	0	NA
Off-Site (BFI)	NA	0
Off-Site (CWMI)	NA	0
-----	-----	-----
Total Off-Site Release	0	0

SARA 313 RELEASE INVENTORY
LAKE CHARLES REFINERY

COMPONENT = SULFURIC ACID

	1988 RELEASE (LB/YR.)	1989 RELEASE (LB/YR.)
AIR POINT RELEASES	464	478
AIR NON-POINT RELEASES	<499	<499
TOTAL AIR RELEASE	<963	<977
WATER RELEASE	0	0
LAND RELEASE	NA	NA

SAL 000004419

SARA 313 RELEASE INVENTORY
LAKE CHARLES REFINERY

COMPONENT = TOLUENE

	1988 RELEASE (LB/YR.)	1989 RELEASE (LB/YR.)
AIR POINT RELEASES		
Storage Tanks	14194	7011
AIR NON-POINT RELEASES		
Loading Loss	1006	1650
Process Equipment Fugitives		
#3 CTU & Vac	1233	1600
#2 CTU	1092	1140
#4 HDS	678	380
#3 CRU & HDS	4876	3820
#1 Coker	1522	1540
#2 Coker	292	740
Gas Recovery Plant	1231	840
#6 HDS	142	80
FCC Feed Prep	384	100
FCC	2792	1100
#2 CRU & HDS	2121	3540
Thermal Cracker	302	500
PBC	4421	1060
Molex	55	80
SHAD/VHAD	1089	1560
Tank Farm	16618	15299
Process Drains	177	1293
Separators		
API	72	72
DAF	3	3
IAF	1	1
Cooling Tower	301	301
Wastewater Trtmt	90	78
Landfarm Waste Trtmt	620	NA
-----	-----	-----
Total Non-point Release	41118	36777
TOTAL AIR RELEASE	55312	43788
WATER RELEASE	39	34
LAND RELEASE		
On-Site (Landfarm)	0	NA
Off-Site (BFI)	NA	207
Off-Site (CWMI)	NA	168
-----	-----	-----
Total Off-Site Release	0	375

SAL 000004420

SARA 313 RELEASE INVENTORY
LAKE CHARLES REFINERY

COMPONENT = 1,2,4-TRIMETHYLBENZENE

	1988 RELEASE (LB/YR.)	1989 RELEASE (LB/YR.)
AIR POINT RELEASES		
Storage Tanks	167	152
AIR NON-POINT RELEASES		
Loading Loss	19	68
Process Equipment Fugitives		
#3 CRU & HDS	360	320
#1 Coker	1141	1160
#2 Coker	219	560
Gas Recovery Plant	923	640
FCC Feed Prep	78	20
FCC	1110	1260
#2 CRU & HDS	139	260
Thermal Cracker	226	380
Tank Farm	2941	3108
Process Drains	3	16
API Separators	1	1
Cooling Water	47	47
Wastewater Trtmt	296	129
Landfarm Waste Trtmt	847	NA
-----	-----	-----
Total Non-point Release	8350	7969
TOTAL AIR RELEASE	8517	8121
WATER RELEASE	39	17
LAND RELEASE		
On-Site (Landfarm)	0	NA
Off-Site (BFI)	NA	62
Off-Site (CWMI)	NA	50
-----	-----	-----
Total Off-Site Release	0	112

SAL 000004421

SARA 313 RELEASE INVENTORY
LAKE CHARLES REFINERY

COMPONENT = XYLENE

	1988 RELEASE (LB/YR.)	1989 RELEASE (LB/YR.)
AIR POINT RELEASES		
Storage Tanks	7708	2512
AIR NON-POINT RELEASES		
Loading Loss	631	576
Process Equipment Fugitives		
#3 CTU & Vac	657	840
#2 CTU	757	600
#4 HDS	362	340
#3 CRU & HDS	3816	4020
#1 Coker	2473	2500
#2 Coker	475	1200
Gas Recovery Plant	2000	1360
FCC Feed Prep	510	120
FCC	7052	2040
#2 CRU & HDS	1469	3240
Thermal Cracker	490	800
PBC	6803	580
Tank Farm	21667	17786
Process Drains	131	583
Separators		
API	53	53
DAF	2	2
IAF	1	1
Cooling Water	470	470
Wastewater Trtmt	187	81
Landfarm Waste Trtmt	983	NA
-----	-----	-----
Total Non-point Release	50989	37192
TOTAL AIR RELEASE	58697	39704
WATER RELEASE	39	17
LAND RELEASE		
On-Site (Landfarm)	0	NA
Off-Site (BFI)	NA	533
Off-Site (CWMI)	NA	454
-----	-----	-----
Total Off-Site Release	0	987

SAL 000004422

RELEASE CALCULATIONS

Ammonia

L.C.

AIR

Point Release = NA

Non-point Release : Aqua ammonia is injected into #2 & #3 CTU to inhibit corrosion

Fugitive Eqpmt

$$\begin{aligned} \text{Release} &= \left(4 \text{ Valves}_{(\text{est.})} \times 0.012 \frac{\text{lb}}{\text{h}}^{(1)} + 4 \left(\frac{7849 \text{ F}}{1891 \text{ V}} \right)^{(2)} \times 0.0018 \right) \frac{\text{lb NH}_3}{\text{hr}} \\ &\quad \times 24 \frac{\text{h}}{\text{d}} \times 365 \frac{\text{d}}{\text{yr}} \times 2 \text{ CTUs} \times 0.30 \text{ NH}_3^{(3)} \\ &= \underline{410 \frac{\text{lb}}{\text{yr}}} \end{aligned}$$

$$\begin{aligned} \text{Wastewater Trtmt} \\ \text{Release to Air} &= \underline{1217 \frac{\text{lb}}{\text{yr}}} \quad (\text{see Appx G}) \end{aligned}$$

$$\text{Total Non-point Release} = \underline{1627 \frac{\text{lb}}{\text{yr}} (1600)}$$

Basis = Engineering Calculation

WATER

$$\text{Release} = \underline{2200 \frac{\text{lb}}{\text{yr}}} (2200) \quad (\text{see Appx G})$$

LAND

$$\text{Release} = \underline{\text{NA}} \quad (\text{NH}_3 \text{ either chemically degraded or volatilized})$$

(1) See Appx B, Table D-1 (SOCMI emission factor)

(2) Flange/Valve ratio estimate from #3 CTU VOC source count (Appx I)

(3) see MSDS scan, Appx A

RELEASE CALCULATION₆

Chlorine

L.C.

AIR

Point Release = NA

Non-point Release = Chlorine is injected into the cooling and boiler water systems to prevent microbial growth.

5 Cooling Tower & 1 Boiler Injections = 6

Estimate 2 valves, 8 flanges each:

$$\begin{aligned}\text{Release} &= [2(.012)^{(1)} + 8(.0018)] \frac{\text{lb}}{\text{hr}} \times 24 \frac{\text{hr}}{\text{d}} \times 365 \frac{\text{d}}{\text{yr}} \times 6 \text{ Inj. Pt.} \\ &= \underline{2,018 \text{ lb/yr chlorine}}\end{aligned}$$

Basis = Engineering Estimate

WATER

Release = NA (low solubility; ionizes & volatilizes)

LAND

Release = NA (gaseous; none present in waste)

(1) See Appx B - SocMI emission factors

RELEASE CALCULATIONS

Hydrochloric Acid

L.C.

AIR

$$\text{Point Release} = (\text{storage tank}) - \text{See attached spreadsheet}$$
$$\frac{5,896,700 \text{ lbs HCl used}}{(1988)} \times \text{(1)} (0.352 \text{ HCl}) \times \text{(2)} \left(\frac{1 \text{ ft}^3}{62.4 (1.268) \text{ lb}} \right) \times \left(\frac{7.48 \text{ gal}}{\text{ft}^3} \right) \times \left(\frac{1 \text{ bbl}}{42 \text{ gal}} \right)$$

$$= \underline{\underline{\cancel{4,672 \text{ bbl throughput}}}}$$

$$\text{Storage Release} = \underline{\underline{\cancel{66 \text{ lb}}}} \times 0.352 \text{ HCl} \times \frac{0.21 \text{ psia HCl}}{0.31 \text{ psia HCl soln.}} \text{(3)}$$

(see attached spreadsheet)

$$= \underline{\underline{\cancel{16 \text{ lb HCl}}}}$$

Non-point Release

HCl is used for boiler water demineralizer resin regeneration.

Fugitive Eqpm't Sources $\Rightarrow$ assume 1 pump, 4 valves, 14 flanges
(4 x 3.6)

$$\text{Release} = \left[1 (.011)^{(4)} + 4 (.016) + 14 (.0018) \right] \frac{\text{lb}}{\text{h}} \times 24 \frac{\text{h}}{\text{d}} \times 365 \frac{\text{d}}{\text{yr}}$$
$$\times 0.352 \text{ HCl} = \underline{\underline{614 \frac{\text{lb}}{\text{yr}} \text{ HCl}}} \quad (610)$$

Basis = Engineering Calculation

WATER

$$\text{Release} = \underline{\underline{0}}$$

Basis = pH Monitoring of Effluent (between 6-9)
(see Appx G)

LAND

$$\text{Release} = \underline{\underline{NA}}$$

- (1) see Appx C - 1988 Bluebook
- (2) see MSDS scan - Appx A
- (3) CRC Handbook of Chemistry & Physics
- (4) see Appx B - Emission Factors

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VOC EMISSION CALCULATIONS FIXED ROOF

DATE	=	17-May-90
TIME PERIOD : MONTH,YR START	=	JAN 89
: MONTH,YR END	=	DEC 89
LOCATION	=	LAKE CHARLES
POINT SOURCE I.D. #	=	HCL TANK
MATERIAL STORED	=	HCL
TANK CAPACITY (bbls)	=	238
THRUPUT (bbls/yr)	=	6334

BREATHING LOSS

TANK DIAMETER (ft)	D =	11
TANK HEIGHT (ft)	H =	15
VAPOR SPACE HEIGHT (ft)	h =	7.5
DAILY TEMP CHANGE (F)	dT =	20
MOLECULAR WEIGHT	Mv =	30
VAPOR PRESSURE (psia)	Pv =	0.31
PRESSURE (psia)	Pa =	14.7
PRODUCT FACTOR	Kc =	1
PAINT FACTOR	Fp =	1
SMALL TANK FACTOR	C =	0.56
BREATHING LOSS (lbs)	Lb =	22

WORKING LOSS

MOLECULAR WEIGHT	Mv =	30
VAPOR PRESSURE	Pv =	0.31
# OF TURNOVERS PER YEAR	N =	26.613445378
TANK CAPACITY (gal)	V =	9996
TURNOVER FACTOR	Kn =	1
PRODUCT FACTOR	Kc =	1
WORKING LOSS (lbs)	Lw =	59

TOTAL LOSS (lb/yr)	Lt =	Lb + Lw	
	=		81 X 37 = 36

SAL 000004426

RELEASE CALCULATIONS

Lead Compounds

L.C.

AIR

Point Release =

$$\text{Stg. Tank Throughput} = 106,267 \text{ lb TEL}^{(1)} \times \frac{453.6 \text{ g}}{1 \text{ lb}} \times \frac{1 \text{ ml}}{1.586 \text{ g}}^{(2)} \\ \times \frac{1 \text{ l}}{1000 \text{ ml}} \times \frac{0.2642 \text{ gal}}{1 \text{ l}} \times \frac{1 \text{ bbl}}{42 \text{ gal}} = 191 \text{ bbl}$$

Heavier than MMT (see Mn cmpds; $\rho_{\text{MMT}} = 1.38 \text{ g/ml}$)

TEL tank has a glycol seal on top; no release due to tank venting.

Stg. Release = 0 $\frac{\text{lb}}{\text{yr}}$ Pb (see attached spreadsheet)

Non-pt. Release

Fug. Eqpmt Source = TEL (lead antiknock) additive system (added to regular gasoline)

Sources = estimate 1 pump, 10 valves, 36 flanges

$$\text{Fug. Release} = [1(.047) + 10(.00051) + 36(.0018)] \frac{\text{lb TEL}}{\text{hr}} \times 24 \frac{\text{h}}{\text{d}} \\ \times 365 \frac{\text{d}}{\text{yr}} \times \frac{178.67 \text{ g Pb}^{(2)}}{1 \text{ lb TEL}} \times \frac{1 \text{ lb Pb}}{453.6 \text{ g}} \\ = \underline{403 \text{ lb Pb}} \text{ (parent metal release)}$$

Basis = Engineering Calculation

WATER

Release = 0 lb (Very little potential to get to waste water system.)

LAND

Release = NA (No leaded gasoline tank cleanout in 1988)⁽³⁾

(1) see Appx C - 1988 Bluebook

(2) Physical Properties Table attached

(3) see Appx F - Solid Waste Disposal (1988)

RELEASE CALCULATIONS

Manganese Compounds

L.C.

AIR

Point Release =

$$\text{Stg. Tank Throughput} = 298,693 \text{ lb MMT} \times \frac{(1) 1 \text{ gal}}{11.5 \text{ lb}} \times \frac{1 \text{ bbl}}{42 \text{ gal}} = 618 \text{ bbl}$$

$$\text{Stg Loss} = \underline{0 \text{ lb}} \quad (\text{see attached spreadsheet})$$

Non-point Release =

Fugitive Eqpmt Source = "Ethyl" MMT additive system

MMT is added to regular gasoline as antiknock to supplement declining usage of lead (TEL)

Sources = estimate 1 pump, 10 valves, 36 flanges
(10 x 3.6)

$$VP = 0.047 \text{ mm Hg}^{(2)} \times \frac{14.7 \text{ psia}}{760 \text{ mm Hg}} = 0.0009 \text{ psia}$$

(heavy liquid)

$$\begin{aligned} \text{Release} &= [1(.047)^{(3)} + 10(.00051) + 36(.0018)] \frac{\text{lb}}{\text{hr}} \text{ MMT} \\ &\quad \times 24 \frac{\text{hr}}{\text{d}} \times 365 \frac{\text{d}}{\text{yr}} \times 0.244 \text{ wt \% Mn}^{(2)} \\ &= \underline{250 \text{ lb/yr Mn}} \quad (\text{parent metal release}) \end{aligned}$$

Basis = Engineering Calculation

WATER

Release = 0 lb (Very little potential to get to wastewater system)

LAND

Release = NA (No leaded gasoline tank cleanout in 1988)⁽⁴⁾

(1) see Appx C - 1988 Bluebook

(2) Physical Properties table attached

(3) see Appx B - Emission Factors

(4) see Appx F - Solid Waste Disposal (1988)

RELEASE CALCULATIONS

Methanol

L.C.

AIR

Point Release :

Stg Loss (Tank 404) = 1210

Non-point Release

Fugitive Sources = 2 injection spots in cryo (de-icing)
1 propane blending injection (additive)
1 A023 injection point (fuel oil additive)

Additive systems = 1 LL pump (from barrels)

$$\text{Propane blending} = (0.11 \frac{\text{lb}}{\text{hr}})^{(2)} \times 24 \frac{\text{hr}}{\text{d}} \times 365 \frac{\text{d}}{\text{yr}} = 964 \frac{\text{lb}}{\text{yr}} \text{ MeOH}$$

$$\text{A023 (Fuel oil) blending} = 964 \frac{\text{lb}}{\text{yr}} \times 0.50 \text{ MeOH}^{(3)} = 482 \frac{\text{lb}}{\text{yr}} \text{ MeOH}$$
$$\underline{1,446 \frac{\text{lb}}{\text{yr}}}$$

Cryo's = assume 10% of amt used is released to air⁽⁴⁾
remainder sent to sewer (100% degradation)

$$\text{MeOH usage}_{1988}^{(5)} = 108 \text{ gal} \times \frac{1 \text{ ft}^3}{7.48 \text{ gal}} \times \frac{62.4 \text{ lb} (0.796)}{\text{ft}^3} = 717 \frac{\text{lb}}{\text{yr}}$$

$$\text{Cryo release} = 0.10 (717 \frac{\text{lb}}{\text{yr}}) = 72 \frac{\text{lb}}{\text{yr}} \text{ MeOH}$$

$$\text{Total Non-pt Release} = \underline{1,518 \frac{\text{lb}}{\text{yr}} \text{ MeOH}}$$

Basis = Engineering Estimate

(1) per 1988 EIS — see Appx H

(2) SocMI emission factor — Appx B

(3) per G. Hopkins IOC (5-2-88) — Appx A

(4) estimate by Steve Jones, P.C. Refy

(5) 1988 Bluebook — Appx C

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Methanol (cont'd)

L.C.

WATER

Release = 0 (100% degraded - per EPA SARA 313 guidance document)

Basis = Engineering Estimate

LAND

On-Site Release = 0 (100% degradation of any MeOH to landfarm)⁽¹⁾

Off-Site Release = NA

Basis = Engineering Estimate

- (1) see EPA Chemdata 6 land treatment model - Appx F
(suspected that MeOH at very low concentrations in waste - any volatilization is negligible)

RELEASE CALCULATIONS

Molybdenum Trioxide

L.C.

AIR

$$\text{Point Release} = \text{NA}$$

$$\begin{aligned} \text{Non-point Release} &= \frac{100 \text{ lb cat loss}}{\text{cat dump}} \times \frac{12 \frac{\text{month}}{\text{yr}}}{9 \text{ month}^{(1)} \text{ (avg run)}} \times 8 \text{ HDS units} \\ \text{(HDS Cat Handling)} & \\ \Rightarrow \text{Blowaway} &= 1,067 \text{ lb cat lost} \end{aligned}$$

$$\begin{aligned} 1,067 \text{ lb HDS cat} & \left(0.57 \frac{\text{lb}}{\text{mo}}^{(2)} \times 0.096 \text{ MoO}_3^{(3)} + 0.43 \frac{\text{lb}}{\text{mo}}^{(2)} \times 0.13 \text{ MoO}_3^{(3)} \right) \\ &= \underline{118 \text{ lb/yr MoO}_3} \quad (120 \text{ lb/yr}) \end{aligned}$$

Basis = Engineering Estimate

WATER

$$\text{Release} = \text{NA}$$

(Assume no HDS cat contact w/ wastewater; due to overwhelming presence of Al_2O_3 , CoO , NiO , catalyst is insoluble⁽⁴⁾ $\Rightarrow$ no effluent release)

LAND

(see Appx F - Solid Waste Release Calculations)

- (1) Estimate by Steve Jones, P.C. Refy
- (2) L.C. HDS cat usage info per Lloyd Winger IOC (Appx F)
- (3) HDS cat composition data in Appx F
- (4) per EPA SARA 313 Guidance Document, Chemical/Physical Property data

RELEASE CALCULATIONS

Phosphoric Acid

L.C.

AIR

Pt & Non-pt Release = NA

(Cat Poly catalyst is wet dumped)⁽¹⁾

WATER

Release = 0

Basis = pH monitoring of effluent (between 6-9)
⇒ see Appx G - wastewater monitoring reports

LAND

On-site Release = NA

Off-site Release = 0 (Wet spent cat poly catalyst is neutralized prior to landfill)⁽¹⁾

Basis = Engineering Estimate

(1) Based on L.C. refy operation (B. Butler, D. Kersey)

RELEASE CALCULATIONS

Sulfuric Acid

L.C.

AIR

Point Release =

No Storage Release (VP = 1.78×10^{-6} psia)⁽¹⁾
⇒ too heavy

Acid Plant Production = 73,500 bbl 98% H_2SO_4 ⁽²⁾

$$73,500 \text{ bbl} \left(\frac{42 \text{ gal}}{\text{bbl}} \right) \left(\frac{1 \text{ ft}^3}{7.48 \text{ gal}} \right) \left(\frac{62.4 \text{ lb}}{\text{ft}^3} \right) (1.84 \text{ sp. gr}) \left(\frac{1 \text{ ton}}{2000 \text{ lb}} \right) = 23,692 \text{ tons}$$

$$\text{Acid Plant Demister} = \frac{0.02 \text{ lb release}}{\text{ton produced}} \times 23,692 \text{ tons} \times 0.98 H_2SO_4 \quad (3)$$
$$= 464 \text{ lb } H_2SO_4$$

Basis = Engineering Calculation

$$\text{Non-point Release} = < 499 \text{ lb } H_2SO_4$$

(Fugitive Eqpmt: Acid Plant, Alky, Cooling Tower)

(SOCMI factors don't fit heavy inorganics; no good factors)

(DuPont H_2SO_4 plant, Ft Hill, OH reported < 499
for whole plant — E.J. Mancini)

WATER

Release = 0

Basis = pH monitoring of effluent (between 6-9)⁽⁴⁾

LAND

Release = NA

(1) Perry's Chemical Engineer's Handbook

(2) 1988 Bluebook — see Appx C

(3) AP-42 emission factor — see Appx B

(4) Wastewater Self-monitoring reports — see Appx G

SAL 000004433

Sulfuric Acid

$$\begin{array}{r} 75.7 \text{ bbl } 89 \\ \hline 73.5 \text{ bbl } 88 \end{array} \times 464 = \underline{478 \text{ lbs}}$$